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ABSTRACT

This is the second volume of a series produced by the State Education Department of the University of the State of New York. Mathematics objectives and sample items included were originally developed by four local school districts and are not intended to be official or comprehensive, but an aid to teachers in constructing curricula and making classroom goals clear and precise. The document presents a series of examples, each of which states an objective and gives a sample item. There are ten sections: sets; number, numeral, and numeration systems; whole numbers; fractions (positive rationals); decimals; measurement; geometry; problem solving/word problems; algebra; statistics and probability. Related documents are SE 014 173 and 014 174. (JM)

ED 064167

PROJECT SPPED

System for Program and Pupil Evaluation and Development

SG SE/ CG

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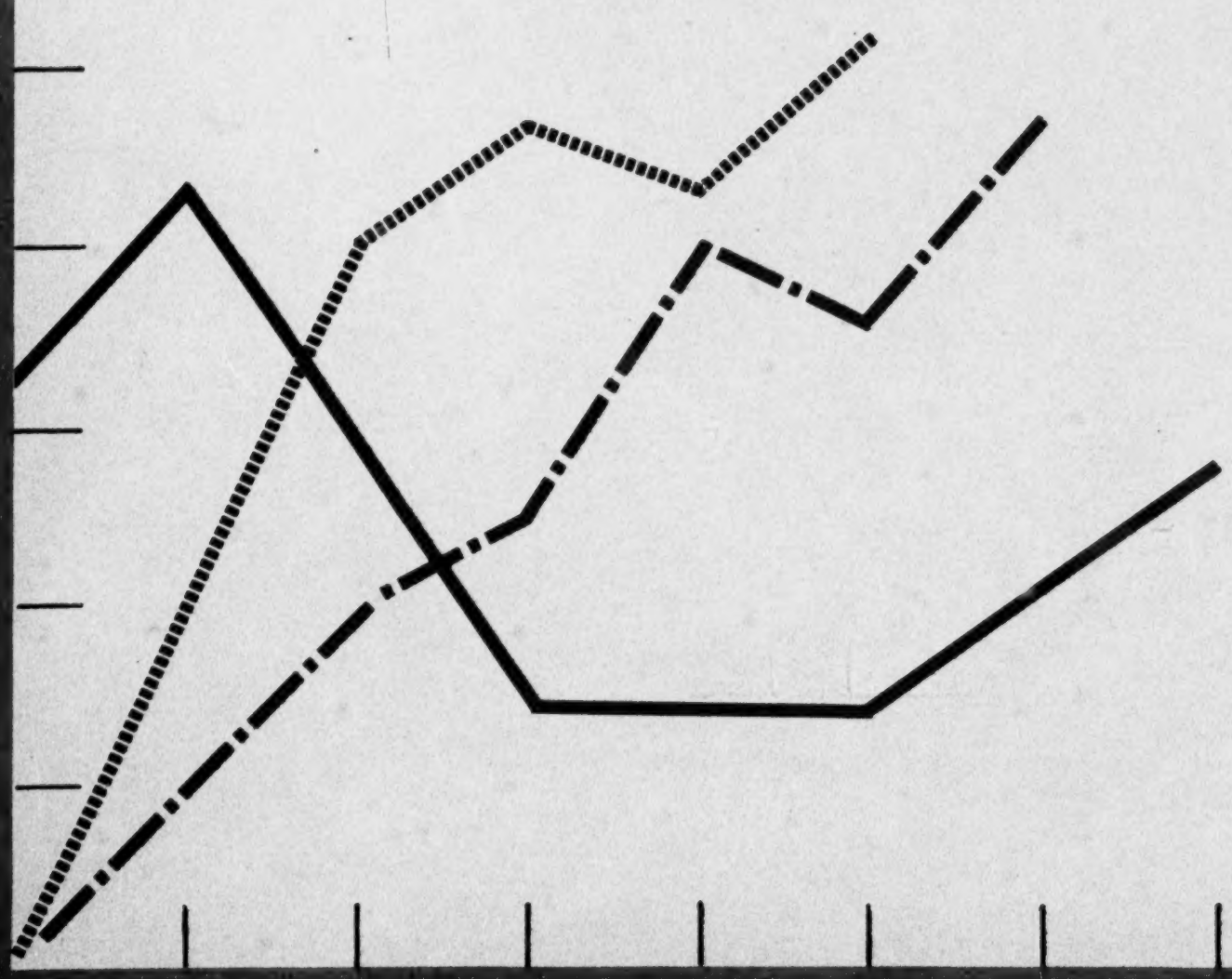
MATHEMATICS OBJECTIVES

LEVEL 5



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Albany, New York 12224
1971

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MATHEMATICS OBJECTIVES FOR LEVEL 5

Project SPPED

System for Pupil and Program Evaluation and Development

Volume II

The University of the State of New York
The State Education Department
Division of Research
Albany, New York 12223

FOREWORD

The mathematics objectives and items in this packet were originally developed by four local school districts who were participating in CAM projects sponsored by the New York State Education Department. They were refined, checked for quality, and organized by Gerlach van Gendt of the Bureau of School and Cultural Research with assistance from Lee Negus of the Bureau of Mathematics Education.

These objectives are not an official or endorsed set of Mathematics Objectives. Nor do they claim to be comprehensive (i.e., covering all material in the relevant grade levels).

Nonetheless, it is our hope that many teachers will find these objectives useful and helpful in constructing curricula for their classes. These objectives can help you, as a teacher, make vague classroom goals clear and precise. But, the responsibility for what is taught is still the teacher's.

LEVEL 5

Sets

		6 0 4 8 5	

OBJECTIVE: Given a set, (or sets) the student will name it (them) as finite or infinite.

SAMPLE ITEM: Name the following sets as finite or infinite:

(a) A = {1, 2, 3...}

(b) B = {6}

Answer: (a) infinite
(b) finite

Level 5 Classification - Sets, Listing a Set/Set Notation/ Terminology/Finite-Infinite	41 Descriptor - Finite and Infinite Sets Role, Student

		6 0 4 9 0	

OBJECTIVE: Given a group of sets, the student will name a universal set for each set.

SAMPLE ITEM: Name a universal set for the set below:

{The set of students in your class}

Answer: {The set of students in the school} or an equal set or a set of more students than are in the class.

Level 5 Classification - Sets, Listing a Set/Set Notation/ Terminology/Finite-Infinite	41 Descriptor - Universal Sets Role, Student

		6 0 4 9 5	

OBJECTIVE: The student will write, or identify, the symbol which indicates a set.

SAMPLE ITEM: Write the symbol which indicates a set.

Answer: { }

Level 5
Classification - Sets,
Listing a Set/Set Notation/
Terminology/Finite-Infinite

41 Descriptor - Set Notation

Role, Student

		6 0 5 0 0	

OBJECTIVE: Given a set, the student will name the set by listing the members.

SAMPLE ITEM: List the members in the following set: {last 3 months in the year}.

Answer: {October, November, December}

Level 5
Classification - Sets,
Listing a Set/Set Notation/
Terminology/Finite-Infinite

41 Descriptor - Listing a Set

Role, Student

		6 0 5 0 5	

OBJECTIVE: Given two nonintersecting sets, the student will list the union.

SAMPLE ITEM: Given A = $\{1, 2, 3\}$ and B = $\{4, 6, 8\}$, name the union $A \cup B$

Answer: $A \cup B = \{1, 2, 3, 4, 6, 8\}$

Level 5 Classification - Sets, Union and Intersection/Disjoint/ Pictorial Representation	41 Descriptor - Union of Sets Role, Student

		6 0 5 1 0	

OBJECTIVE: Given three intersecting sets, the student will write the intersection of the sets.

SAMPLE ITEM: Given: A = $\{1, 2, 3\}$, B = $\{2, 3, 5\}$, C = $\{2, 7, 8\}$. Name $A \cap B \cap C$

Answer: $A \cap B \cap C = \{2\}$

Level 5 Classification - Sets, Union and Intersection/Disjoint/ Pictorial Representation	41 Descriptor - Intersection of Sets Role, Student

		60515	

OBJECTIVE: Given a pair of disjoint sets, the student will identify the intersection of the given pair of sets as the empty set.

SAMPLE ITEM: Name the intersection of the pair of sets:

$A = \{Joe, Tom, Kim\}$

$B = \{Ralph, Paula, George\}$

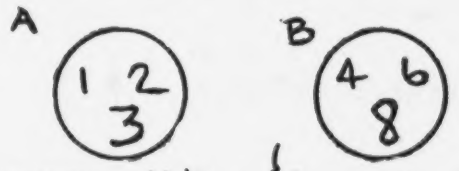
Answer: $A \cap B = \{\}$ or $\varnothing$

Level 5 Classification - Sets, Union and Intersection/Disjoint/ Pictorial Representation	41 Descriptor - Disjoint Sets Role, Student

		60525	

OBJECTIVE: Given two sets in Venn circles, the student will list the union of the sets.

SAMPLE ITEM: Show the union in set notation:



Answer: $A \cup B = \{1, 2, 3, 4, 6, 8\}$

Level 5 Classification - Sets, Union and Intersection/Disjoint/ Pictorial Representation	41 Descriptor - Pictorial Representation of Sets Role, Student

		6 0 5 3 0	

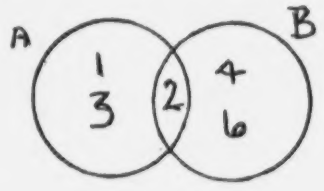
OBJECTIVE: Given two sets with at least one member in common, the student will show the intersection using Venn Circles.

SAMPLE ITEM: Show $A \cap B$ using Venn Circles:

$A = \{1, 2, 3\}$

$B = \{2, 4, 6\}$

Answer:



Level 5 Classification - Sets, Union and Intersection/Disjoint/ Pictorial Representation	41 Descriptor - Pictorial Representation of Sets Role, Student

		6 0 5 3 5	

OBJECTIVE: Given a set containing no more than three elements, the student will write all subsets for the given set.

SAMPLE ITEM: Write all the subsets for the given set $\{1, 2\}$.

Answer: $\{1\}$, $\{2\}$, $\{1, 2\}$, $\{\}$ or $\emptyset$

Level 5 Classification - Sets, Subsets - Empty Sets	41 Descriptor - Determining Subsets Role, Student

		6 0 5 4 0	

OBJECTIVE: Given a set with no more than 3 elements, the student will write all of the subsets, for the given set, containing two elements

SAMPLE ITEM: Write all of the subsets containing two elements for the following set: {10, 20, 30}

Answer: {10, 30}
{10, 20}
{20, 30}

Level 5 Classification - Sets, Subsets - Empty Sets	41 Descriptor - Determining Subsets Role, Student
	6 0 5 4 5

OBJECTIVE: Given a description of a set that contains no elements, the student will list the set.

SAMPLE ITEM: List the set of cows on the moon.

Answer: { } or ∅

Level 5 Classification - Sets, Subsets - Empty Sets	41 Descriptor - Empty Set Role, Student

		6 0 5 5 0	

OBJECTIVE: Given a set, the student will write an equivalent set.

SAMPLE ITEM: Write a set equivalent to $\{1, 2, 3\}$.

Answer: $\{5, 6, 7\}$, or any set of three elements.

Level 5 Classification - Sets, Equal/Equivalent	41 Descriptor - Equal and Equivalent Sets Role, Student
6 0 5 5 5	

OBJECTIVE: Given a set, the student will list a set equal to the given set.

SAMPLE ITEM: List a set equal to the given set.

$\{Jack, John, Jim\}$

Answer: $\{Jack, John, Jim\}$

Level 5 Classification - Sets, Equal/Equivalent	41 Descriptor - Equal and Equivalent Sets

Number, Numeral, and Numeration Systems

		60560	

OBJECTIVE: Students will select a numeral that means the same as a number written in words. The correct numeral will be less than 100,000,000.

SAMPLE ITEM: How do you write "three hundred thirty thousand seven hundred and eight" as a numeral?

(A) 330,708
(B) 330,078
(C) 33,780
(D) 303,708

Level 5
Classification - Number, Numeral, and Numeration Systems, Numbers/Counting/ Identifying Numerals

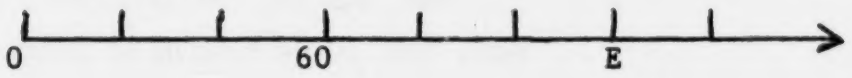
41 Descriptor - Reading and Writing Numbers

Role, Student

		60565	

OBJECTIVE: Given a number line with a labeled point, the student will write the whole number represented by that point.

SAMPLE ITEM: Using a numeral, name the lettered point on the following line:



Answer: 120

Level 5
Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities

41 Descriptor - Number Line Labeling

Role, Student

		6 0 5 7 0		

OBJECTIVE: Given an addition or subtraction number sentence pictured on a number line, and a list of number sentences, the student will select the number sentence which is equivalent to the number sentence pictured on the number line.

SAMPLE ITEM: Which sentence listed below would be true as indicated on the number line? Write the correct letter in the blank space.

A 13 + 6 = 19
B 12 + 5 = 17
C 13 + 5 = 18
D 14 + 6 = 20

Answer: C

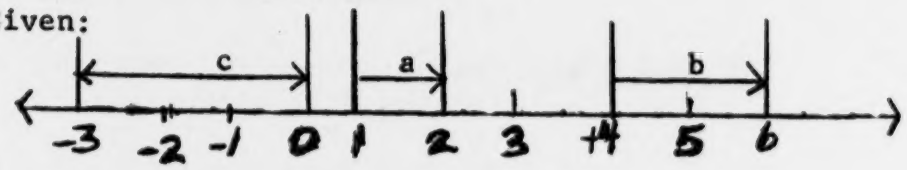
Level 5
Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities

41 Descriptor - Number Sentence from Number Line
Role, Student

		6 0 5 7 5		

OBJECTIVE: Given a number line, the student will name the arrow equivalent to an indicated number of units.

SAMPLE ITEM: Given:



Name the arrow having a length of 2 units.

Answer: b

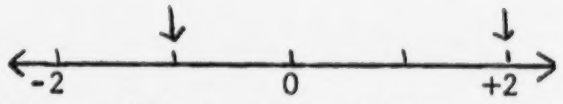
Level 5
Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities

41 Descriptor - Number Line Labeling
Role, Student

		6 0 5 8 0	

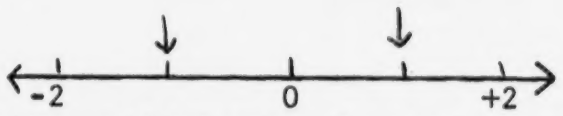
OBJECTIVE: Given two points on a number line, the student will draw the positive or negative addend arrow between the points.

SAMPLE ITEM: (a) Given:



Draw the positive addend arrow between the indicated points.

(b) Given:

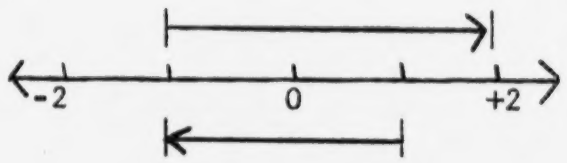


Draw the negative addend arrow between the indicated points.

Answer:

(a)

(b)

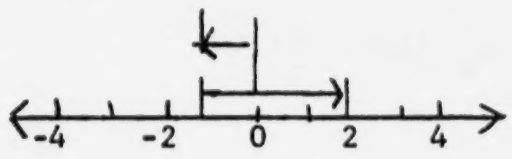


Level 5 Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities	41 Descriptor - Number Line Labeling Role, Student

		6 0 5 8 5	

OBJECTIVE: Given two addend arrows with different signs, the student will find the sum.

SAMPLE ITEM: Given:



Find the sum.

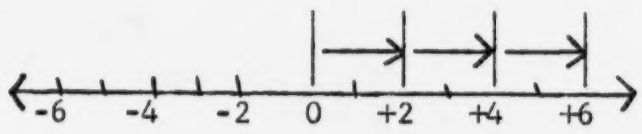
Answer: 2

Level 5 Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities	41 Descriptor - Addition on Number Line Role, Student

		6 0 5 9 0	

OBJECTIVE: Given two or more addend arrows having the same value, the student will write the equation for finding the sum.

SAMPLE ITEM: Given:



Write the equation and the sum.

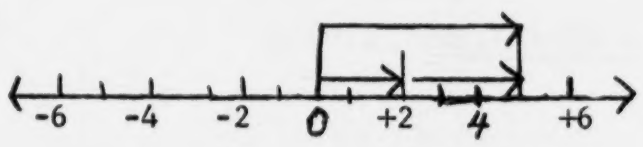
Answer: 2 + 2 + 2 = 6

Level 5 Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities	41 Descriptor - Addition on Number Line Role, Student

		6 0 5 9 5	

OBJECTIVE: Given an addition expression represented on a number line, the student will write the equation.

SAMPLE ITEM: Given:



Write an equation for the above number line.

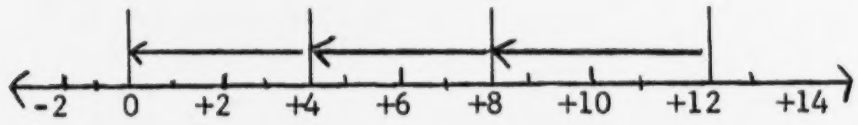
Answer: +2 + 3 = +5

Level 5 Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities	41 Descriptor - Addition on Number Line Role, Student

| | | 6 0 6 0 0 | |

OBJECTIVE: Given a number line showing repeated subtraction, the student will write the related equation indicating division.

SAMPLE ITEM: Given:



Write a division equation for the above number line.

Answer: $12 \div 3 = 4$

Level 5 Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities	41 Descriptor - Division on Number Line Role, Student

| | | 6 0 6 0 5 | |

OBJECTIVE: Given two numbers, the student will write the correct inequality or equality **symbol** to show the relationship between them.

SAMPLE ITEM: Write the symbol for "greater than," "equal to," or "less than" in the blank space to make the number sentence true.

2000 + 600 + 40 + 3 ◯ 2641

Answer: $>$, greater than.

Level 5 Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities	41 Descriptor - Inequalities on Whole Numbers Role, Student

		6 0 6 1 0	

OBJECTIVE: Given a simple inequality, the student will name the solution set.

SAMPLE ITEM: Given: $\square < 6$

Replacement set = $\{1, 3, 4, 7\}$ - name the solution set.

Answer: $\{1, 3, 4\}$

Level 5
Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities

41 Descriptor - Inequalities on Whole Numbers

Role, Student

		6 0 6 1 5	

OBJECTIVE: Given an open sentence inequality, using combined operations and a replacement set, the student will name the solution set.

SAMPLE ITEM: Given: $3 \times \square + 2 > 5$

Replacement Set = $\{0, 1, 2, 3, 4, 5\}$.
What is the solution set?

Answer: $\{2, 3, 4, 5\}$

Level 5
Classification - Number, Numeral, and Numeration Systems, Number Line/Inequalities

41 Descriptor - Inequalities on Whole Numbers

Role, Student

		6 0 6 2 0	

OBJECTIVE: Given the definition of a cardinal number, or ordinal number, the student will select and write the word (cardinal or ordinal) which is being defined.

SAMPLE ITEM: Any number used in counting, or to answer the question "how many," such as one, two, or three is called a (n) _____ number?

Answer: Cardinal

Level 5 Classification - Number, Numeral and Numeration Systems, Cardinal and Ordinal Numbers	41 Descriptor - Cardinal and Ordinal Numbers Role, Student

		6 0 6 2 5	

OBJECTIVE: Given a 4-place number, the student will name the place value of each digit.

SAMPLE ITEM: Name the place value of each digit in the number 4657.

Answer: 4 = thousands
6 = hundreds
5 = tens
7 = ones

Level 5 Classification - Number, Numeral, and Numeration Systems, Place Value	41 Descriptor - Place Value Role, Student

		6 0 6 3 0		

OBJECTIVE: Given a number of 10 digits or less, with one digit underlined, the student will write whether the underlined digit is in the 1's, 10's, 100's, 1000's or 10,000's place.

SAMPLE ITEM: Name the place value of the underlined digit in the following numeral:

3,67<u>2</u>,984

Answer: 1,000's

Level 5 Classification - Number, Numeral, and Numeration Systems, Place Value	41 Descriptor - Place Value Role, Student

		6 0 6 3 5		

OBJECTIVE: Students will inspect a decimal number less or equal to 100,000,000 and will then select the number of 100's, 1000's, 10,000's, etc. contained in the decimal number.

SAMPLE ITEM: How many 1,000's are there in 73,420?

(A) 3
(B) 734
(C) 73
(D) 7

Level 5 Classification - Number, Numeral, and Numeration Systems, Place Value	41 Descriptor - Place Value Role, Student

		60640	

OBJECTIVE: Students will select the Roman numeral that represents a given decimal number less than 999 or vice versa.

SAMPLE ITEM: How do you write CCCLXXXV as a Hindu-Arabic numeral?

(A) 3,535
(B) 385
(C) 235
(D) 285

Level 5 Classification - Number, Numeral, and Numeration Systems, Roman Numerals	41 Descriptor - Roman Numerals Role, Student

		60645	

OBJECTIVE: Given any Roman numeral up to MM (2,000), the student will write the equivalent Hindu-Arabic numeral.

SAMPLE ITEM: Write a Hindu-Arabic numeral for XXVI.

Answer: 26

Level 5 Classification - Number, Numeral, and Numeration Systems, Roman Numerals	41 Descriptor - Roman Numerals Role, Student

		6 0 6 5 0	

OBJECTIVE: Given a number, the student will round it off to the nearest indicated value.

SAMPLE ITEM: Round off the following number to the nearest ten: 46.

Answer: 50

Level 5 Classification - Number, Numeral, and Numeration Systems, Rounding	41 Descriptor - Rounding Off Role, Student

		6 0 6 5 5	

OBJECTIVE: Students will select the numeral which represents a 5-digit number rounded to the nearest 1,000 or 10,000.

SAMPLE ITEM: What would the number 40,349 be, rounded to the nearest thousand?

(A) 41,000
(B) 40,350
(C) 40,300
(D) 40,000

Level 5 Classification - Number, Numeral, and Numeration Systems, Rounding	41 Descriptor - Rounding Off Role, Student

		6 0 6 6 0	

OBJECTIVE: Given any number of 10 digits or less, the student will round off the number to the nearest 10's, 100's, 1000's, 10,000's or 100,000's.

SAMPLE ITEM: Write the following number rounded off to the nearest 1,000: 658, 732.

Answer: 659,000

Level 5 Classification - Number, Numeral, and Numeration Systems, Rounding Off	41 Descriptor - Rounding Off Role, Student

		6 0 6 6 5	

OBJECTIVE: Given a number, the student will rename it by expanded notation.

SAMPLE ITEM: Rename 328 by expanded notation.

Answer: 300 + 20 + 8

Level 5 Classification - Number, Numeral, and Numeration Systems, Expanded Notation	41 Descriptor - Expanded Notation Role, Student

		6 0 6 7 0		

OBJECTIVE: Given a number, the student will rename it using combined operations.

SAMPLE ITEM: Rename 13 using combined operations.

Answer: 5 x 2 + 3 or any combination that equals 13.

Level 5 Classification - Number, Numeral, and Numeration Systems, Renaming	41 Descriptor - Names for Numbers Role, Student

		6 0 6 7 5		

OBJECTIVE: Given a Hindu-Arabic numeral of six digits or less, the student will write the numeral in words.

SAMPLE ITEM: Write the number words for the following Hindu-Arabic numeral: 342,167.

Answer: 342, 167

Level 5 Classification - Number, Numeral, and Numeration Systems, Renaming	41 Descriptor - Names for Numbers Role, Student

Whole Numbers

		6 0 6 8 0	

OBJECTIVE: Students will select the number which is the correct answer to an addition problem involving up to four 4-digit numbers.

SAMPLE ITEM:

```
  5049
  6138
  2704
+ 9613
```

(A) 23,514
(B) 22,484
(C) 23,294
(D) 23,504

Level 5 Classification - Whole Numbers, Addition	41 Descriptor - Adding Whole Numbers Role, Student

		6 0 6 8 5	

OBJECTIVE: Given four or less addends, each five digits or less, the student will compute and write the sum.

SAMPLE ITEM: Find the sum of the following addends:

```
 43,267
  9,371
 66,884
+ 7,442
```

Answer: 126,964

Level 5 Classification - Whole Numbers, Addition	41 Descriptor - Adding Whole Numbers Role, Student

		60690	

OBJECTIVE: Students will select the number which is the correct answer to a subtraction problem involving up to two 5-digit numbers. Some digits in the subtrahend may be larger than the corresponding digits in the minuend.

SAMPLE ITEM:

$$\begin{array}{r} 26{,}509 \\ -\ 14{,}256 \\ \hline \end{array}$$

(A) 12,253
(B) 12,353
(C) 40,765
(D) 40,755

Level 5 Classification - Whole Numbers Subtraction	41 Descriptor - Subtraction-Whole Nos.- With Borrowing Role, Student

		60695	

OBJECTIVE: Given any 2 factors, each 2 or 3 digits, the student will compute and write the product.

SAMPLE ITEM: Write the product of the following numbers:

$$\begin{array}{r} 438 \\ \times\ 265 \\ \hline \end{array}$$

Answer: 116,070

Level 5 Classification - Whole Numbers Multiplication	41 Descriptor - Multiplication of Whole Numbers Role, Student

		6 0 7 0 0	

OBJECTIVE: Given 2 factors of 3 digits each, one or both containing 0's, the student will compute and write the product.

SAMPLE ITEM: Find and write the product of 406 x 370.

Answer: 150,220

Level 5 Classification - Whole Numbers, Multiplication	41 Descriptor - Multiplication of Whole Numbers Role, Student

		6 0 7 0 5	

OBJECTIVE: Students will select the number which is the correct answer to a multiplication problem involving up to two 3-digit numbers.

SAMPLE ITEM:

739
x 524

(A) 373,006
(B) 387,236
(C) 375,136
(D) 236,387

Level 5 Classification - Whole Numbers, Multiplication	41 Descriptor - Multiplication of Whole Numbers Role, Student

		6 0 7 1 5	

OBJECTIVE: Given a 3-or 4-digit dividend and a one-digit divisor, the student will compute and write the quotient.

SAMPLE ITEM: Solve the following problem and write the correct answer in the blank space:

$$8\overline{)6342}$$

Answer: 792 R 6

Level 5 Classification - Whole Numbers, Division	41 Descriptor - Division with Remainder Role, Student

		6 0 7 2 0	

OBJECTIVE: Students will select the number plus remainder which is the correct quotient to a division problem involving up to a 5-digit number divided by a 2-digit number.

SAMPLE ITEM: $21\overline{)27,599}$

(A) 1,314
(B) 1,020 R 9
(C) 1,314 R 5
(D) 13,145

Level 5 Classification - Whole Numbers, Division	41 Descriptor - Division with Remainder Role, Student

		6 0 7 2 5	

OBJECTIVE: Given an example involving addition, subtraction, multiplication, or division, the student will write the solution.

SAMPLE ITEM: Find the solutions of:

(A) 385 + 291 + 326

(B) 297 − 215

(C) 29 × 15

(D) $7\overline{)280}$

Answer: (a) 1002
(b) 82
(c) 435
(d) 40

Level 5
Classification - Whole Numbers, Division

41 Descriptor - Operations on the Whole Numbers

Role, Student

		6 0 7 3 0	

OBJECTIVE: Given the four basic operations (+, -, x, ÷ ,), the student will write under which operations the set of whole numbers are closed.

SAMPLE ITEM: Write the basic operation from the following under which the set of whole numbers is closed. Write "addition" or "subtraction" or "division."

Answer: Addition

Level 5
Classification - Whole Numbers, Properties/Inverse Operations

41 Descriptor - Closure - Whole Numbers

Role, Student

		6 0 7 3 5	

OBJECTIVE: Given an equation, the student will write an equivalent equation involving inverse operations.

SAMPLE ITEM: Write a subtraction equation for the following addition equation:

6 + 4 = 10

____ - ____ = ____

Answer: 10 - 6 = 4 or 10 - 4 = 6

Level 5 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Inverse - Whole Numbers Role, Student

		6 0 7 4 0	

OBJECTIVE: Given an addition or subtraction example, the student will write an equivalent number sentence using the inverse operation.

SAMPLE ITEM: Write an equivalent number sentence for the given number sentence using the inverse operation:

46 + 11 = 57

Answer: 57 - 11 = 46
57 - 46 = 11

Level 5 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Inverse - Whole Numbers Role, Student

		60745	

OBJECTIVE: Given a multiplication or division example, the student will write an equivalent number sentence using the inverse operation.

SAMPLE ITEM: Write an equivalent number sentence for the given number sentence using the inverse operation:

$9 \times 7 = 63$

$63 \div 7 = 9$
$63 \div 9 = 7$

Level 5 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Inverse - Whole Numbers Role, Student

		60750	

OBJECTIVE: Given a multiplication problem in which one of the factors is 0, the student will name the product. product.

SAMPLE ITEM: Name the product: $32 \times 0 =$

Answer: 0

Level 5 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Multiplication Property of 0 Role, Student

		6 0 7 5 5	

OBJECTIVE: Given a division problem which contains the identity element as a divisor, the student will solve the problem.

SAMPLE ITEM: Solve the following problem:

$27 \div 1 =$ _____.

Answer: 27

Level 5 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Identity Element - Whole Numbers Role, Student

		6 0 7 6 0	

OBJECTIVE: Given any number x 1 such as 4 x 1, the student will name the product.

SAMPLE ITEM: Given: 5 x 1, write the product.

Answer: 5

Level 5 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Identity Element - Whole Numbers Role, Student

		6 0 7 6 5	

OBJECTIVE: Given the sum of any number plus 0, such as A + 0, the student will name the sum.

SAMPLE ITEM: Given 3 + 0. Name the sum.

Answer: 3

Level 5 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Identity Element - Whole Numbers Role, Student

		6 0 7 7 0		

OBJECTIVE: Given a problem, the student will rewrite it to demonstrate the distributive property.

SAMPLE ITEM: Given: 42 x 7 = _____, rename using the distributive property.

Answer: (40 + 2) x 7
(40 x 7) + (2 x 7) or 280 + 14

Level 5 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - **Distributive** - Whole Numbers Role, Student

		6 0 7 7 5	

OBJECTIVE: Given a number example, the student will rewrite it using the distributive property.

SAMPLE ITEM: Use the distributive property to rewrite the following problem:

$$7 \times (5 + 2)$$

Answer: $(7 \times 5) + (7 \times 2)$

Level 5 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - **Distributive** - Whole Numbers Role, Student

		6 0 7 8 0	

OBJECTIVE: Given three factors such as (a x b) x c, the student will rewrite them using the associative property of multiplication.

SAMPLE ITEM: Rename the equation using the associative property:

$$6 \times 5 \times 4 = 6 \times (5 \times 4)$$
$$6 \times 20 = 120$$

Answer: $(6 \times 5) \times 4$
$30 \times 4 = 120$

Level 5 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Associative - Whole Numbers Role, Student

60785

OBJECTIVE: Given three addends such as (a + b) + c, the student will show the associative property by rewriting the addends such as a + (b + c).

SAMPLE ITEM: Given (4 + 3) + 2, rewrite the addends showing the associative property.

Answer: 4 + (3 + 2).

Level 5
Classification - Whole Numbers, Properties/Inverse Operations

41 Descriptor - Associative - Whole Numbers

Role, Student

60790

OBJECTIVE: Given a multiplication problem with two factors, the student will use the commutative property to rewrite the problem.

SAMPLE ITEM: Use the commutative property to rewrite the following problem:

7 x 14.

Answer: 14 x 7.

Level 5
Classification - Whole Numbers, Properties/Inverse Operations

41 Descriptor - Commutative - Whole Numbers

Role, Student

		6 0 7 9 5	

OBJECTIVE: Given an addition example with 2 addends, the student will rewrite it using the Commutative Property.

SAMPLE ITEM: Use the commutative property of addition to rewrite the following example:

9 + 15

Answer: 15 + 9

Level 5 Classification - Whole Numbers, Properties/Inverse Operations	41 Descriptor - Commutative - Whole Numbers Role, Student

		6 0 8 0 0	

OBJECTIVE: Given a pair of numbers, the student will name the greatest common factor.

SAMPLE ITEM: Given 8 and 12, name the greatest common factor.

Answer: 4

Level 5 Classification - Whole Numbers, Factors/Common Factors/ G.C.F./Divisibility Rules	41 Descriptor - Greatest Common Factor Role, Student

		6 0 8 0 0	0 0 0 0 5	

OBJECTIVE: Given a set of numbers, the student will name their greatest common factor.

SAMPLE ITEM: Given: $\{6, 8, 10\}$. Name their greatest common factor.

Answer: 2

Level 5 Classification - Whole Numbers, Factors/Common Factors/ G.C.F./Divisibility Rules	41 Descriptor - Common Factors Role, Student

		6 0 8 0 5		

OBJECTIVE: Given a 2-digit number, the student will find and write its complete set of factors.

SAMPLE ITEM: Write the complete set of factors for the following number:

32

Answer: $\{1, 2, 4, 8, 16, 32\}$

Level 5 Classification - Whole Numbers, Factors/Common Factors/ G.C.F./Divisibility Rules	41 Descriptor - Factors Role, Student

		6 0 8 0 5	0 0 0 0 5	

OBJECTIVE: Given a list of numbers, the student will write the numbers divisible by 2, 3, 4, 5, ...12.

SAMPLE ITEM: From the list below, write the numbers divisible by 3: 13, 21, 16, 33.

Answer: 21, 33

		6 0 8 1 0		

OBJECTIVE: Given a pair of numbers, the student will name the least common multiple.

SAMPLE ITEM: Name the least common multiple of the following pair of numbers:

3, 4

Answer: 12

Level 5 Classification - Whole Numbers, Factors/Common Factors/ G.C.F./Divisibilty Rules	41 Descriptor - Divisibility by 2, 3, 4,....12. Role, Student

Level 5 Classification - Whole Numbers, Multiples/Common Multiples/ L.C.M.	41 Descriptor - Lowest Common Multiples Role, Student

		6 0 8 1 0	0 0 0 0 5

OBJECTIVE: Given two numbers and their sets of multiples, the student will name their common multiples.

SAMPLE ITEM: Given: 3, {3, 6, 9, 12, 15, 18}
2, {2, 4, 6, 8, 10, 12, 14, 16, 18}

Name the intersection.

Answer: 6, 12, 18

Level 5 Classification - Whole Numbers, Multiples/Common Multiples/ L.C.M.	41 Descriptor - Common Multiples Role, Student

		6 0 8 1 0	0 0 0 1 0

OBJECTIVE: Given a number, the student will write the set of its next five multiples.

SAMPLE ITEM: Given 6, write the set of its next five multiples.

Answer: {12, 18, 24, 30, 36}.

Level 5 Classification - Whole Numbers, Multiples/Common Multiples/ L.C.M.	41 Descriptor - Multiples Role, Student

		60900	

OBJECTIVE: Given a number with an exponent, the student will rename the number.

SAMPLE ITEM: Rename the number: 2^3.

Answer: 8

Level 5 Classification - Whole Numbers, Exponents and Powers	41 Descriptor - Exponents (Evaluating) Role, Student

		60905	

OBJECTIVE: Given a 2-digit number, the student will find and write its complete factorization.

SAMPLE ITEM: Write the complete factorization for the following number:

25

Answer: 5 x 5

Level 5 Classification - Whole Numbers, Prime/Composite	41 Descriptor - Prime Factorization Role, Student

		6 0 9 1 0	

OBJECTIVE: Students will select the set of numbers , which are as stated either exclusively primes, composites, or factors of a given number; or divisible by a given number for numbers less than or equal to 50.

SAMPLE ITEM: Choose the set that contains only multiples of 2.

(A) 2, 4, 9, 12
(B) 3, 6, 9, 12
(C) 10, 20, 30, 40
(D) 5, 10, 15, 20

Level 5 Classification - Whole Numbers, Prime/Composite	41 Descriptor - Identifying Numbers as Prime or Composite Role, Student

		6 0 9 1 5	

OBJECTIVE: Given a list of whole numbers, the student will select the prime number or the composite number.

SAMPLE ITEM: Select and write the letter which labels a prime number:

A - 27
B - 38
C - 41
D - 49

Answer: C

Level 5 Classification - Whole Numbers, Prime/Composite	41 Descriptor - Identifying Numbers as Prime or Composite Role, Student

		6 0 9 2 0	

OBJECTIVE: Given a list of numbers, the student will name each number as a prime or a composite.

SAMPLE ITEM: Given: $\{2, 3, 4, 5, 6, 7, 8, 9\}$. Write the prime numbers.

Answer: 2, 3, 5, 7

Level 5 Classification - Whole Numbers, Prime/Composite	41 Descriptor - Identifying Numbers as Prime or Composite Role, Student

		6 0 9 2 5	

OBJECTIVE: Given an arithmetic sequence, the student will continue the sequence until it contains a specified number of terms.

SAMPLE ITEM: Continue the sequence until it contains eight terms: 11, 21, 31, 41,...

Answer: 51, 61, 71, 81.

Level 5 Classification - Whole Numbers, Prime/Composite	41 Descriptor - Sequences Role, Student

Fractions (Positive Rationals)

		6 0 9 3 0		

OBJECTIVE: Given a fraction, the student will reduce it to lowest terms.

SAMPLE ITEM: Reduce $\frac{6}{9}$ to lowest terms.

Answer: $\frac{2}{3}$

Level 5 Classification - Fractions (Positive Rationals), Simplifying/Reducing Fractions	41 Descriptor - Reducing Fractions Role, Student

		6 0 9 3 5		

OBJECTIVE: Given a fraction, the student will identify the numerator or the denominator.

SAMPLE ITEM: In the fraction $\frac{13}{16}$, the 13 is called the ? .

Answer: Numerator

Level 5 Classification - Fractions (Positive Rationals), Basic Concepts	41 Descriptor - Identifying Numerator/Denominator Role, Student

		6 0 9 4 0	

OBJECTIVE: Given a set of common fractions, the student will select and write the proper fraction.

SAMPLE ITEM: In the following set, select and write the proper fraction.

$$\left\{2\frac{1}{2},\ \frac{1}{2},\ \frac{4}{2},\ \frac{2}{2}\right\}$$

Answer: $\frac{1}{2}$

Level 5 Classification - Fractions (Positive Rationals), Proper/Improper/ Mixed Fractions /**Complex**	41 Descriptor - Identifying Proper/ Improper Fractions Role, Student

		6 0 9 4 5	

OBJECTIVE: Given a set of common fractions, the student will select and write the improper fraction.

SAMPLE ITEM: In the following set, choose and write the improper fraction.

$$\left\{\frac{1}{4},\ \frac{8}{7},\ 2\frac{3}{4},\right\}$$

Answer: $\frac{8}{7}$

Level 5 Classification - Fractions (Positive Rationals), Proper/Improper/ Mixed Fractions/ **Complex**	41 Descriptor - Identifying Proper/ Improper Fractions Role, Student

		6 0 9 5 0		

OBJECTIVE: Given a set of fractions, the student will select and write the mixed number.

SAMPLE ITEM: From the following set, choose and write the mixed number.

$$\left\{\frac{7}{8},\ \frac{9}{9},\ 2\frac{3}{8},\ \frac{28}{7}\right\}$$

Answer: $2\frac{3}{8}$

Level 5 Classification - Fractions (Positive Rationals), Proper/Improper/Mixed Fractions/Complex	41 Descriptor - Identifying Mixed Numbers Role, Student

		60955	

OBJECTIVE: Given a fraction, the student will select and write an equivalent fraction from a list of fractions.

SAMPLE ITEM: Which of the following is equivalent to $\frac{2}{3}$?

A. $\frac{6}{12}$

B. $\frac{10}{21}$

C. $\frac{12}{21}$

D. $\frac{8}{12}$

Answer: D

Level 5 Classification - Fractions (Positive Rationals), Equivalent Fractions	41 Descriptor - Writing Equivalent Fractions Role, Student

		60960	

OBJECTIVE: Students will select the fraction which is not equivalent to a given fraction. All fractions will be proper fractions. Denominators may be of any size.

SAMPLE ITEM: Find the fraction that is not equivalent to $\frac{2}{3}$.

(A) $\frac{14}{21}$ (B) $\frac{4}{6}$ (C) $\frac{8}{12}$ (D) $\frac{6}{15}$

Level 5 Classification - Fractions (Positive Rationals), Equivalent Fractions	41 Descriptor - Identifying Equivalent Fractions Role, Student

		6 0 9 6 5		

OBJECTIVE: Given a fraction and the denominator of an equivalent fraction, the student will find the numerator of the equivalent fraction.

SAMPLE ITEM: (a) $\frac{1}{3} = \frac{\ }{6}$

(b) $\frac{1}{4} = \frac{\ }{8}$

Answer: (a) $\frac{1}{3} = \frac{2}{6}$

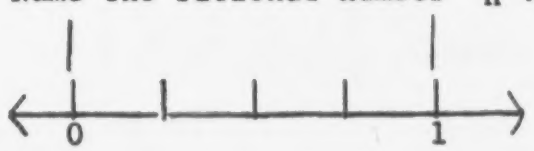
(b) $\frac{1}{4} = \frac{2}{8}$

Level 5 Classification - Fractions (Positive Rationals), Equivalent Fractions	41 Descriptor - Writing Equivalent Fractions Role, Student

		6 0 9 7 0		

OBJECTIVE: Given a number line from 0 to 1 divided into equal parts, the student will determine the length of one equal part.

SAMPLE ITEM: Name the rational number $\frac{1}{n}$:



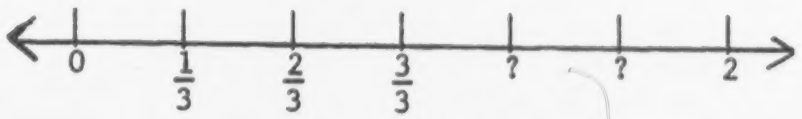
Answer: $\frac{1}{4}$

Level 5 Classification - Fractions (Positive Rationals), Representing Fractions on Number Line (Ordering Fractions)	41 Descriptor - Identifying Fractions on Number Line Role, Student

		6 0 9 7 5		

OBJECTIVE: Given a rational number line with two missing points, the student will identify the rational value of the missing points.

SAMPLE ITEM: Name the missing points:



Answer: $\frac{4}{3}$, $\frac{5}{3}$ or $1\frac{1}{3}$, $1\frac{2}{3}$

Level 5
Classification - Fractions (Positive Rationals), Representing Fractions on Number Line (Ordering Fractions)

41 Descriptor - Identifying Fractions on Number Line

Role, Student

		6 0 9 8 0		

OBJECTIVE: Given a set of fractions with like denominators, the student will list them in increasing or decreasing order as indicated.

SAMPLE ITEM: List the set of fractions in increasing order:

$$\left\{\frac{8}{8}, \frac{1}{8}, \frac{4}{8}, \frac{3}{8}, \frac{5}{8}\right\}$$

Answer: $\left\{\frac{1}{8}, \frac{3}{8}, \frac{4}{8}, \frac{5}{8}, \frac{8}{8}\right\}$

Level 5
Classification - Fractions (Positive Rationals), Representing Fractions on Number Line (Ordering Fractions)

41 Descriptor - Ordering of Fractions

Role, Student

		6 0 9 8 5	

OBJECTIVE: Students will select the fraction that completes a number sentence of the form: $2\frac{2}{3} > \square$

SAMPLE ITEM: $\frac{7}{8} > \square$

(A) $\frac{1}{2}$ (C) $1\frac{1}{3}$

(B) $\frac{9}{10}$ (D) $2\frac{1}{2}$

Level 5 Classification - Fractions (Positive Rationals), Representing Fractions on Number Line (Ordering Fractions)	41 Descriptor - Ordering of Fractions Role, Student

		6 0 9 9 0	

OBJECTIVE: Given a set of fractions with unlike denominators, the student will place them in order from lowest to highest.

SAMPLE ITEM: Arrange the fractions in order from the lowest to the highest:

$$\left\{\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{5}, \frac{1}{7}\right\}$$

Answer: $\left\{\frac{1}{8}, \frac{1}{7}, \frac{1}{5}, \frac{1}{4}, \frac{1}{2}\right\}$

Level 5 Classification - Fractions (Positive Rationals), Representing Fractions on Number Line (Ordering Fractions)	41 Descriptor - Ordering of Fractions Role, Student

		60995	

OBJECTIVE: Given a set of rational numbers, the student will write them in order from least to greatest or from greatest to least.

SAMPLE ITEM: Write in order from least to greatest;

$$\left\{\frac{3}{4}, \frac{2}{3}, \frac{7}{8}, \frac{5}{6}\right\}$$

Answer: $\left\{\frac{2}{3}, \frac{3}{4}, \frac{5}{6}, \frac{7}{8}\right\}$

Level 5 Classification - Fractions (Positive Rationals), Representing Fractions on Number Line (Ordering Fractions)	41 Descriptor - Ordering of Fractions Role, Student

		61000	

OBJECTIVE: Given four or less common fractions with the same denominators, the student will compute and write the sum in lowest terms.

SAMPLE ITEM: Compute and write the sum in lowest terms.

$$\frac{4}{6} + \frac{1}{6} + \frac{5}{6}$$

Answer: $1\frac{2}{3}$

Level 5 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Adding Like Fractions Role, Student

		6 1 0 0 5	

OBJECTIVE: Given two or three fractions with different denominators with no term exceeding two digits, the student will find and write the least common denominator.

SAMPLE ITEM: Find and write the least common denominator of the following fractions:

$$\frac{5}{8}, \frac{2}{3}, \frac{5}{6}$$

Answer: 24

Level 5 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Least Common Denominator Role, Student

		6 1 0 0 5	0 0 0 0 5

OBJECTIVE: Given two rational numbers, the student will name two equivalent fractions having a common denominator.

SAMPLE ITEM: Given: $\frac{2}{3}, \frac{1}{4}$. Find the two equivalent fractions having a common denominator.

Answer: $\frac{8}{12}, \frac{3}{12}$

Level 5 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Finding Common Denominators Role, Student

		6 1 0 1 0		

OBJECTIVE: Students will select the number which is the lowest common denominator of two given fractions. The denominators of the two given fractions will be less than or equal to 20.

SAMPLE ITEM: Find the lowest common denominator (LCD) of $\frac{1}{3}$ and $\frac{1}{5}$.

(A) 15 (B) 8 (C) 35 (D) 4

Level 5 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Least Common Denominator Role, Student

		6 1 0 1 5		

OBJECTIVE: Given a problem involving the addition of fractions with unlike denominators, the student will write the sum.

SAMPLE ITEM: Name the sum:

$$\begin{array}{r} \frac{1}{2} \\ +\ \frac{3}{4} \\ \hline \end{array}$$

Answer: $\frac{5}{4}$ or $1\frac{1}{4}$

Level 5 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Adding Unlike Fractions Role, Student

		6 1 0 2 0		

OBJECTIVE: Students will select the proper fraction or mixed number which is the correct answer to an addition problem involving two fractions, each less than 1, with unlike denominators. The denominators of the two fractions will be less than or equal to 20.

SAMPLE ITEM: $\frac{5}{7} + \frac{11}{14} = \square$

(A) $\frac{55}{98}$ (B) $\frac{16}{21}$ (C) $1\frac{1}{7}$ (D) $1\frac{1}{2}$

Level 5 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Adding Unlike Fractions Role, Student

		6 1 0 2 5		

OBJECTIVE: Given an example involving the addition of mixed numbers, the student will write the sum.

SAMPLE ITEM: Find the sum: $2\frac{1}{3} + 1\frac{1}{4} =$ _____ .

Answer: $3\frac{7}{12}$

Level 5 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Addition of Mixed Numbers Role, Student

		6 1 0 3 0		

OBJECTIVE: Given in horizontal form, a whole number and a mixed number, the student will compute and write the sum in lowest terms.

SAMPLE ITEM: Compute and write the sum in lowest terms.

$$72 + 119\ \frac{10}{12} =$$

Answer: $191\frac{5}{6}$

Level 5 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Addition of Mixed Numbers Role, Student

		6 1 0 3 5		

OBJECTIVE: Given in horizontal form, a whole number of four digits or less and a fraction in which no term exceeds two digits, the student will compute and write the sum in lowest terms.

SAMPLE ITEM: Compute and write the sum in lowest terms.

$$483 + \frac{34}{68} =$$

Answer: $483\frac{1}{2}$

Level 5 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Addition of Mixed Numbers Role, Student

		6 1 0 4 0	

OBJECTIVE: Students will select the mixed number in **simplest** form that is the correct answer to an addition problem involving two mixed numbers with unlike denominators. The two mixed numbers will each be less than 100 and their denominators will be less than or equal to 20.

SAMPLE ITEM: $7\frac{2}{3} + 1\frac{1}{4} = \square$

(A) $8\frac{3}{7}$ (B) 4 (C) $8\frac{1}{6}$ (D) $8\frac{11}{12}$

Level 5 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Addition of Mixed Numbers Role, Student

		6 1 0 4 5	

OBJECTIVE: Given three mixed numbers with different denominators, the student will compute and write the sum in lowest terms.

SAMPLE ITEM: Compute the sum. Write the answer in lowest terms.

$$\begin{array}{r} 5\frac{1}{3} \\ 4\frac{5}{8} \\ +\ 3\frac{1}{6} \\ \hline \end{array}$$

Answer: $13\frac{1}{8}$

Level 5 Classification - Fractions (Positive Rationals), Addition	41 Descriptor - Addition of Mixed Numbers Role, Student

		6 1 0 5 0	

OBJECTIVE: Students will select the proper fraction which is the correct answer to a subtraction problem involving two fractions each less than 1, with unlike denominators. The denominators of the two fractions will be less than or equal to 20.

SAMPLE ITEM: $\frac{6}{7} - \frac{9}{14} = \square$

(A) $\frac{3}{14}$ (B) $\frac{27}{49}$ (C) $\frac{5}{14}$ (D) $\frac{3}{7}$

Level 5 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtracting Unlike Fractions Role, Student

		6 1 0 5 0	0 0 0 0 5

OBJECTIVE: Given two fractions with common denominators, the student will compute and write the difference in lowest terms, reducing when necessary.

SAMPLE ITEM: Subtract and write the answer in lowest terms.

$\frac{23}{27} - \frac{14}{27} = \square$

Answer: $\frac{1}{3}$

Level 5 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtracting Like Fractions Role, Student

		6 1 0 5 5	

OBJECTIVE: Given two fractions with different denominators the student will find the difference and reduce to lowest terms when necessary.

SAMPLE ITEM: Compute and write the difference in lowest terms.

$$\frac{12}{15} - \frac{2}{5}$$

Answer: $\frac{2}{5}$

Level 5 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtracting Unlike Fractions Role, Student

		6 1 0 6 0	

OBJECTIVE: Given a whole number, the student will subtract a mixed number and write the difference in lowest terms reducing when necessary.

SAMPLE ITEM: Compute and write the answer in lowest terms.

$$21 - 14\frac{2}{8} =$$

Answer: $6\frac{3}{4}$

Level 5 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtracting Mixed Numbers Role, Student

		6 1 0 6 5	

OBJECTIVE: Given in horizontal form, a whole number and a fraction, the student will compute and write the difference.

SAMPLE ITEM: Subtract and write the answer in lowest terms.

$$2778 - \frac{19}{25} =$$

Answer: $2777\frac{6}{25}$

Level 5 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtracting Unlike Fractions Role, Student

		6 1 0 7 0	

OBJECTIVE: Given two mixed numbers, whose like denominators do not exceed two digits, the student will compute and write the difference.

SAMPLE ITEM: Subtract and reduce answer to lowest terms.

$$\begin{array}{r} 7\frac{12}{21} \\ -\ 4\frac{9}{21} \\ \hline \end{array}$$

Answer: $3\frac{1}{7}$

Level 5 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtracting Mixed Numbers Role, Student

		6 1 0 7 5	

OBJECTIVE: Given an example involving the subtraction of mixed numbers, the student will write the difference.

SAMPLE ITEM: Find the difference: $6\frac{3}{9} - 2\frac{1}{9} =$ ____

Answer: $4\frac{2}{9}$

Level 5 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtracting Mixed Numbers Role, Student

		6 1 0 8 0	

OBJECTIVE: Students will select the mixed number or proper fraction in simplest form which is the correct answer to a subtraction problem involving two mixed numbers with unlike denominators. The two mixed numbers will each be less than 100 and their denominators will be less than or equal to 20.

SAMPLE ITEM: $9\frac{3}{4} - 6\frac{1}{8} =$ ☐

(A) $3\frac{5}{8}$ (B) $3\frac{1}{16}$ (C) $3\frac{1}{2}$ (D) $4\frac{1}{3}$

Level 5 Classification - Fractions (Positive Rationals), Subtraction	41 Descriptor - Subtracting Mixed Numbers Role, Student

		6 1 0 8 5		

OBJECTIVE: Given a multiplication problem with two fractional factors, the student will write the product.

SAMPLE ITEM: Find the product: $\frac{3}{5} \times \frac{2}{3} =$ ____

Answer: $\frac{6}{15}$ or $\frac{2}{5}$

Level 5 Classification - Fractions (Positive Rationals), Multiplication	41 Descriptor - Multiplying Fractions Role, Student

		6 1 0 9 0		

OBJECTIVE: Students will select the proper fraction in simplest form which is the correct answer to a multiplication problem involving two proper fractions, each with denominators less than or equal to 20.

SAMPLE ITEM: $\frac{3}{8} \times \frac{5}{6} = \square$

(A) $\frac{4}{7}$ (B) $\frac{1}{6}$ (C) $\frac{5}{16}$ (D) $\frac{15}{16}$

Level 5 Classification - Fractions (Positive Rationals), Multiplication	41 Descriptor - Multiplying Fractions Role, Student

		6 1 0 9 5	

OBJECTIVE: Given two proper fractions with no denominator exceeding two digits, the student will compute and write the product in lowest terms.

SAMPLE ITEM: Multiply and write the answer in lowest terms.

$$\frac{12}{13} \times \frac{5}{36}$$

Answer: $\frac{5}{39}$

Level 5 Classification - Fractions (Positive Rationals), Multiplication	41 Descriptor - Multiplying Fractions Role, Student

		6 1 1 0 0	

OBJECTIVE: Given one proper and one improper fraction with no denominator exceeding two digits, the student will compute and write the product in lowest terms.

SAMPLE ITEM: Multiply and write the answer in lowest terms.

$$\frac{7}{11} \times \frac{9}{5}$$

Answer: $1\frac{8}{55}$

Level 5 Classification - Fractions (Positive Rationals), Multiplication	41 Descriptor - Multiplying Fractions Role, Student

		6 1 1 0 5	

OBJECTIVE: Students will select the proper fraction or mixed number which is the correct answer to a multiplication problem involving a mixed number and a proper fraction. Denominators may be of any size.

SAMPLE ITEM: $\frac{3}{8} \times 1\frac{2}{7} = \square$

(A) $\frac{12}{15}$ (B) $\frac{27}{56}$ (C) $\frac{9}{14}$ (D) $\frac{21}{72}$

Level 5 Classification - Fractions (Positive Rationals), Multiplication	41 Descriptor - Multiplying Mixed Numbers Role, Student

		6 1 1 1 0	

OBJECTIVE: Given in horizontal form a whole number and a mixed number, the student will compute and write the product in lowest terms.

SAMPLE ITEM: Compute and write the product in lowest terms.

$15 \times 3\frac{4}{5}$

Answer: 57

Level 5 Classification - Fractions (Positive Rationals), Multiplication	41 Descriptor - Multiplying Mixed Numbers Role, Student

		6 1 1 1 5		

OBJECTIVE: Given a division problem involving fractions, the student will solve it.

SAMPLE ITEM: Solve the problem: $\frac{3}{5} \div \frac{2}{5} =$ ____

Answer: $\frac{3}{4} \div \frac{2}{5} = \frac{3}{4} \times \frac{5}{2} = \frac{15}{8}$ or $1\frac{7}{8}$

Level 5 Classification - Fractions (Positive Rationals), Division	41 Descriptor - Division of Fractions Role, Student

		6 1 1 2 0		

OBJECTIVE: Given an addition example with two addends, the student will rewrite it, using the commutative property.

SAMPLE ITEM: Rewrite the following problem using the commutative property.

$$\frac{5}{8} + \frac{3}{4}$$

Answer: $\frac{3}{4} + \frac{5}{8}$

Level 5 Classification - Fractions (Positive Rationals), Properties/Reciprocals/ Multiplicative Inverse	41 Descriptor - Commutative Property, Fractions Role, Student

		6 1 1 2 5	

OBJECTIVE: Given a multiplication example of two factors involving fractions, the student will rewrite it to demonstrate the commutative property.

SAMPLE ITEM: Rewrite using the commutative form:

$$\frac{1}{2} \times \frac{3}{4} = ____ \times ____$$

Answer: $\frac{1}{2} \times \frac{3}{4} = \frac{3}{4} \times \frac{1}{2}$

Level 5 Classification - Fractions (Positive Rationals), Properties/Reciprocals/ Multiplicative Inverse	41 Descriptor - Commutative Property, Fractions Role, Student

		6 1 1 3 0	

OBJECTIVE: Given an addition example with three addends, the student will rewrite it using the associative property.

SAMPLE ITEM: Rewrite the following problem using the associative property.

$$\frac{7}{8} + \left(\frac{11}{12} + \frac{13}{17}\right)$$

Answer: $\left(\frac{7}{8} + \frac{11}{12}\right) + \frac{13}{17}$

Level 5 Classification - Fractions (Positive Rationals), Properties/Reciprocals/ Multiplicative Inverse	41 Descriptor - Associative Property, Fractions Role, Student

		6 1 1 3 5		

OBJECTIVE: Given a multiplication example of three factors involving fractions, the student will rewrite the example to demonstrate the associative property.

SAMPLE ITEM: Rewrite using the associative form:

$$\left(\frac{1}{2} \times \frac{2}{3}\right) \times \frac{3}{5}$$

Answer: $\frac{1}{2} \times \left(\frac{2}{3} \times \frac{3}{5}\right)$

Level 5 Classification - Fractions (Positive Rationals), Properties/Reciprocals/ Multiplicative Inverse	41 Descriptor - Associative Property, Fractions Role, Student

		6 1 1 4 0		

OBJECTIVE: Given an example involving fractions, the student will rewrite it to demonstrate the distributive property.

SAMPLE ITEM: Rewrite using the distributive property:

$$\frac{1}{3} \times \left(\frac{1}{2} + \frac{3}{4}\right)$$

Answer: $\left(\frac{1}{3} \times \frac{1}{2}\right) + \left(\frac{1}{3} \times \frac{3}{4}\right)$

Level 5 Classification - Fractions (Positive Rationals), Properties/Reciprocals/ Multiplicative Inverse	41 Descriptor - Distributive Property, Fractions Role, Student

		6 1 1 4 5		

OBJECTIVE: Given a rational number, the student will name its reciprocal.

SAMPLE ITEM: Given: $\frac{1}{9}$. Name the reciprocal.

Answer: $\frac{9}{1}$ or 9

Level 5 Classification - Fractions (Positive Rationals), Properties/Reciprocals/ Multiplicative Inverse	41 Descriptor - Reciprocals Role, Student

Decimals

		6 1 1 5 0	

OBJECTIVE: Students will select the decimal number that is the correct answer to an addition problem involving two addends. Each addend will have less than six digits and will have three or fewer digits to the right of the decimal point. The addends will be written in horizontal format.

SAMPLE ITEM: 138.647 + 2473.15 = ☐

(A) 385.962
(B) 2611.797
(C) 3859.62
(D) 2859.112

Level 5 Classification - Decimals, Addition	41 Descriptor - Adding Decimals Role, Student

		6 1 1 5 5	

OBJECTIVE: Students will select the decimal number that is the correct answer to a subtraction problem involving two decimal numbers. Some digits in the subtrahend may be larger than the corresponding digits in the minuend. Both the subtrahend and minuend will be less than 100,000 and will have three or fewer digits to the right of the decimal point.

SAMPLE ITEM:
347.624
- 135.438

(A) 212.212
(B) 212.296
(C) 472.052
(D) 212.186

Level 5 Classification - Decimals, Subtraction	41 Descriptor - Subtracting Decimals Role, Student

		6 1 1 6 0	

OBJECTIVE: Given a problem involving addition or subtraction of decimals, the student will write the solution.

SAMPLE ITEM: Add: .37
+ .48

Answer: .85

Level 5 Classification - Decimals, Subtraction	41 Descriptor - Adding and Subtracting Decimals Role, Student

		6 1 1 6 5	

OBJECTIVE: Students will select the number which correctly answers an addition or subtraction problem involving decimal numbers in which the decimal numbers are written out in words. All decimal numbers will contain only 10's, 100's, or 1000's.

SAMPLE ITEM: Subtract: $15\frac{12}{1000}$ − $7\frac{80}{100}$

(A) .853
(B) 8.802
(C) 8.202
(D) 7.212

Level 5 Classification - Decimals, Subtraction	41 Descriptor - Adding and Subtracting Decimals - In words Role, Student

		6 1 1 7 0		

OBJECTIVE: Given an example involving the multiplication of decimal factors, the student will find the product.

SAMPLE ITEM: Find the product:

$$\begin{array}{r} .4 \\ \times\ .3 \\ \hline \end{array}$$

Answer: .12

Level 5 Classification - Decimals, Multiplication	41 Descriptor - Multiplying Decimals Role, Student

		6 1 1 7 5		

OBJECTIVE: Students will select the decimal number which is the correct answer to a multiplication problem between a decimal number with three or fewer digits to the right of the decimal point and the number 10, 100, or 1000.

SAMPLE ITEM: 341.723 x 10 = ☐

(A) 3,417.230
(B) 34,172.300
(C) 34.1723
(D) 341.723

Level 5 Classification - Decimals, Multiplication	41 Descriptor - Multiplying Decimals Role, Student

		6 1 1 8 0		

OBJECTIVE: Given a division problem involving decimals, the student will find the quotient.

SAMPLE ITEM: Find the quotient: $8.76 \div 1.2$

Answer: 7.3

Level 5 Classification - Decimals, Division	41 Descriptor - Dividing Decimals Role, Student

		6 1 1 8 5		

OBJECTIVE: Students will select the decimal number which is the correct answer to a division problem in which the dividend is a decimal number with three or fewer digits to the right of the decimal point and the divisor is a power of 10.

SAMPLE ITEM: $832.12 \div 10 = \square$

(A) 8,321.2
(B) 8.3212
(C) 83.212
(D) 832.12

Level 5 Classification - Decimals, Division	41 Descriptor - Dividing Decimals Role, Student

		6 1 1 9 0	

OBJECTIVE: Given a number in fractional form, the student will rewrite it as a decimal rounded off to a specific place value.

SAMPLE ITEM: Convert $\frac{1}{8}$ to a decimal. Round off to hundredths.

Answer: .13

Level 5 Classification - Decimals, Changing to a Fraction and vice versa	41 Descriptor - Changing Fractions to Decimals Role, Student

		6 1 1 9 5	

OBJECTIVE: Students will select the decimal number which represents a given proper fraction. The denominator of the given proper fraction will be a power of 10 and not more than 1000.

SAMPLE ITEM: Write $\frac{7}{100}$ as a decimal fraction.

(A) 0.007 (B) 0.07 (C) 7.100 (D) 0.700

Level 5 Classification - Decimals, Changing to a Fraction and vice versa	41 Descriptor - Changing Fractions to Decimals Role, Student

		6 1 2 0 0	

OBJECTIVE: Given a decimal, the student will rewrite it in fractional form.

SAMPLE ITEM: Convert .25 to a fraction.

Answer: $\frac{1}{4}$ or $\frac{25}{100}$

Level 5 Classification - Decimals, Changing to a Fraction and vice versa	41 Descriptor - Changing Decimals to Fractions Role, Student

		6 1 2 0 5	

OBJECTIVE: Students will select the proper fraction, with the denominator being some power of 10, that represents a given decimal number less than 1. The given decimal number will have three or fewer digits to the right of the decimal point.

SAMPLE ITEM: Write 0.17 as a fraction.

(A) $\frac{17}{100}$ (B) $\frac{170}{100}$ (C) $\frac{17}{1000}$ (D) $\frac{17}{10}$

Level 5 Classification - Decimals, Changing to a Fraction and vice versa	41 Descriptor - Changing Decimals to Fractions Role, Student

		6 1 2 1 0		

OBJECTIVE: Given a mixed decimal of five digits or less the student will write its equivalent as a mixed number.

SAMPLE ITEM: Convert 87.32 to its equivalent mixed number in lowest terms.

Answer: $87\frac{8}{25}$

Level 5 Classification - Decimals, Changing to a Fraction and vice versa	41 Descriptor - Mixed Decimal to Mixed Number Role, Student

		6 1 2 1 5		

OBJECTIVE: Given a decimal fraction, the student will round it off to a specified place value.

SAMPLE ITEM: Given 3.749, round it off to the nearest hundredth.

Answer: 3.75

Level 5 Classification - Decimals, Rounding Off	41 Descriptor - Rounding Off Decimals Role, Student

		6 1 2 2 0	

OBJECTIVE: Given a decimal fraction with seven places or less, the student will select and write the digit in the 1000's place.

SAMPLE ITEM: Choose and write the digit in the 1,000's place. place.

2.965432

Answer: 5

Level 5 Classification - Decimals, Place Value	41 Descriptor - Place Value in Decimal Notation Role, Student

		6 1 2 2 5	

OBJECTIVE: Students will select the decimal number that has a given digit in a given place value. The decimal numbers will be less than 1,000 and will have three or fewer digits to the right of the decimal point.

SAMPLE ITEM: Which number has a 5 in the 10's place ?

(A) 347.516 (C) 142.351
(B) 251.053 (D) 521.342

Level 5 Classification - Decimals, Place Value	41 Descriptor - Place Value in Decimal Notation Role, Student

Measurement

		6 1 2 3 0		

OBJECTIVE: Given a unit of linear measure in the English system, the student will convert it into another English unit as specified.

SAMPLE ITEM: Convert 6 yards into inches.

Answer: 216 inches.

Level 5 Classification - Measurement, Linear - English/Metric	41 Descriptor - Converting Linear Measure Role, Student

		6 1 2 3 5		

OBJECTIVE: Given a unit measure in the metric system, the student will name the approximate measure in the English system or vice versa.

SAMPLE ITEM: Given: 1 inch = 2.54 centimeters; approximately how many centimeters are there in 4 inches?

Answer: 10 centimeters

Level 5 Classification - Measurement, Linear - English/Metric	41 Descriptor - Converting Linear Measure Role, Student

		6 1 2 4 0		

OBJECTIVE: Given a unit of measure in the metric system, the student will convert it into another metric unit.

SAMPLE ITEM: Convert 2 meters to centimeters.

Answer: 200 centimeters.

Level 5 Classification - Measurement, Linear - English/Metric	41 Descriptor - Converting Linear Measure Role, Student

		6 1 2 4 5		

OBJECTIVE: Given two different linear English measures, the student will compute and write the sum.

SAMPLE ITEM: Find the sum of the following linear English measures:

50 yds. 2 ft.
+ 20 yds. 10 ft.

Answer: 74 yds.

Level 5 Classification - Measurement, Linear - English/Metric	41 Descriptor - Operations With Linear Measure Role, Student

		6 1 2 5 0	

OBJECTIVE: Given two different linear English measures, the student will compute and write the difference.

SAMPLE ITEM: Solve the problem below:

10 ft. 6 in.
- 4 ft. 7 in.

Answer: 5 ft. 11 in.

Level 5 Classification - Measurement Linear - English/Metric	41 Descriptor - Operations With Linear Measure Role, Student

		6 1 2 5 5	

OBJECTIVE: Students will select the measurement expression which is the correct answer to an addition or subtraction problem involving two of the three English linear quantities of inch, foot, and yard. Students may have to convert one unit of measure into another for purposes of regrouping for subtraction or for simplifying answers in addition. All measurement expressions will use only rational numbers.

SAMPLE ITEM:

4 ft. 4 in.
- 2 ft. 10 in.

(A) 1 ft. 6 in.
(B) 2 ft. 6 in.
(C) 1 ft. 2 in.
(D) 1 ft. 4 in.

Level 5 Classification - Measurement Linear - English/Metric	41 Descriptor - Operations With Linear Measure Role, Student

		6 1 2 6 0	

OBJECTIVE: Given a unit of liquid measure in the English system, the student will convert it to another English unit, as specified.

SAMPLE ITEM: Convert 8 gallons to pints.

Answer: 64 pints

Level 5 Classification - Measurement Liquid - English/Metric	41 Descriptor - Converting Liquid Measure Role, Student

		6 1 2 6 5	

OBJECTIVE: Students will select the measurement expression which is the correct answer to an addition or subtraction problem involving up to three of the five English liquid quantities of gallon, quart, pint, cup, and ounce. Students may have to convert one unit of measure into another for purposes of regrouping for subtraction or for simplifying answers in addition. All measurement expressions will use only rational numbers.

SAMPLE ITEM:

2 gal. 2 qt. 1 pt.
+ 4 gal. 3 qt. 1 pt.

(A) 9 gal.
(B) 6 gal. 5 qt.
(C) 7 gal. 2 qt.
(D) 6 gal. 1 pt.

Level 5 Classification - Measurement Liquid - English/Metric	41 Descriptor - Operations With Liquid Measure Role, Student

		6 1 2 7 0	

OBJECTIVE: Given a conversion problem containing ounces and pounds, the student will write the open sentence using the symbol "□ ."

SAMPLE ITEM: A can of coffee weighs 64 ounces. How many pounds does the can weigh? Write an open number sentence expressing the problem.

Answer: $64 \div 16 = \square$

Level 5 Classification - Measurement Weight - English/Metric	41 Descriptor - Converting Weights Role, Student

		6 1 2 7 5	

OBJECTIVE: Given 2 different English weights, the student will compute and write the sum.

SAMPLE ITEM: Compute and write the sum:

14 pounds 11 ounces + 23 pounds 14 ounces

Answer: 38 pounds 9 ounces

Level 5 Classification - Measurement Weight - English/Metric	41 Descriptor - Operations With Weight Role, Student

		6 1 2 8 0		

OBJECTIVE: Given two different English weights, the student will compute and write the difference.

SAMPLE ITEM: Compute and write the difference:

45 pounds 7 ounces
- 23 pounds 11 ounces

Answer: 21 pounds 12 ounces

Level 5 Classification - Measurement Weight - English/Metric	41 Descriptor - Operations With Weights Role, Student

		6 1 2 8 5		

OBJECTIVE: Students will select the measurement expression which is the correct answer to an addition or subtraction problem involving up to two of the three English weight quantities of ounce, pound, and ton. Students may have to convert one unit of measure to another for purposes of regrouping for subtraction or for simplifying answers in addition. All measurement expressions will use only rational numbers.

SAMPLE ITEM: A box of corn flakes weighs 1 lb. 2 oz. The box itself weighs 8 oz. How much do the corn flakes weigh?

(A) 4 oz. (B) 10 oz. (C) 6 oz. (D) 1 lb. 10 oz.

Level 5 Classification - Measurement Weight - English/Metric	41 Descriptor - Operations With Weights Role, Student

		6 1 2 9 0	

OBJECTIVE: Given a unit of time, the student will convert it into another unit of time as specified.

SAMPLE ITEM: Convert 240 seconds into minutes.

Answer: 4

Level 5 Classification - Measurement Time	41 Descriptor - Converting Time Units Role, Student

		6 1 2 9 5	

OBJECTIVE: Students will select the measurement expression which is the correct answer to an addition or subtraction problem involving up to three of the time quantities of hour, minute, and second. Students may have to convert one unit of measure to another for purposes of regrouping for subtraction or for simplifying answers in addition. All measurement expressions will use only rational numbers.

SAMPLE ITEM: One spacecraft was in flight for 95 hrs. 49 min. 21 sec. Another one was in flight for 57 hrs. 38 min. 36 sec. How much longer was the first spacecraft in flight?

(A) 42 hrs. 11 min. 15 sec.
(B) 38 hrs. 11 min. 55 sec.
(C) 38 hrs. 10 min. 55 sec.
(D) 38 hrs. 10 min. 45 sec.

Level 5 Classification - Measurement Time	41 Descriptor - Operations with Time Role, Student

		6 1 3 0 0	

OBJECTIVE: Given a problem involving the addition or subtraction of money, the student will solve the problem.

SAMPLE ITEM: Add: $12.47
+ 3.46

Answer: $15.93

Level 5 Classification - Measurement-Money	41 Descriptor - Operations with Money Role, Student

		6 1 3 0 5	

OBJECTIVE: Given a problem in money, the student will estimate the cost.

SAMPLE ITEM: Tom brought a sweater for $2.98 and a shirt for $3.99. What is the estimated cost to the nearest dollar?

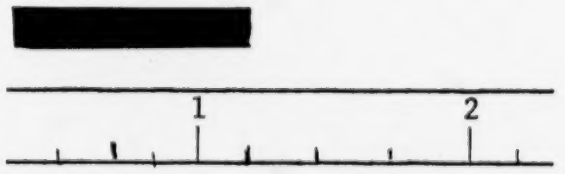
Answer: $7.00

Level 5 Classification - Measurement-Money	41 Descriptor - Operations with Money Role, Student

		6 1 3 1 0	

OBJECTIVE: Students will be presented with a picture of a ruler calibrated in halves, quarters, or eighths of an inch and an object placed along side of the ruler. The students will then select the mixed number or fraction-plus unit that represents the length of the object to the nearest calibrated measurement.

SAMPLE ITEM: How long is the bar below?



(A) $1\frac{1}{4}$ in. (B) $1\frac{1}{2}$ in. (C) 2 in. (D) $2\frac{1}{4}$ in.

Level 5 Classification - Measurement-Precision	41 Descriptor - Precision of Measurements Role, Student

		6 1 3 1 5	

OBJECTIVE: Students will select the measurement expression which is the answer to a problem of the form: "You ride in a car moving at 60 miles per hour for 3 hours. How far do you go?" Two measurement units will be used in each problem, both belonging to the same system of measurement, i.e., English or metric. Each problem will contain a number which is a rate, such as X miles per hour, or analogous to a rate, such as 16 pounds per gallon. In each problem students must multiply the rate by the other number in the problem to obtain the correct answer.

SAMPLE ITEM: Frank rode his bike at 12 miles per hour for 2 hours. How far did Frank go?

(A) 10 miles
(B) 6 miles
(C) 14 miles
(D) 24 miles

Level 5 Classification - Measurement Rate	41 Descriptor - Measurement Involving Rates Role, Student

		6 1 3 2 0		

OBJECTIVE: Given a problem involving addition, subtraction, multiplication, or division of units of measure, the student will solve the problem.

SAMPLE ITEM:

4 ft. 6 in.
+ 3 ft. 5 in.

Answer: (a) 7 ft. 11 in.

Level 5 Classification - Measurement Mixed Measure/Compound Measure/Tables	41 Descriptor - Operations with Measurement Role, Student

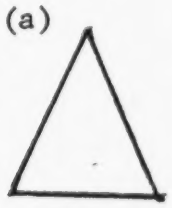
Geometry

		6 1 3 2 5	

OBJECTIVE: Given a geometric figure, the student will name the figure.

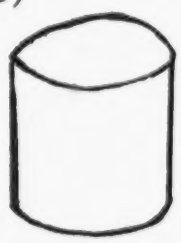
SAMPLE ITEM: Name the following geometric figures:

(a)



(b)

(c)



Answer: (a) triangle
(b) rectangle or parallelogram or quadrilateral
(c) cylinder

Level 5 Classification - Geometry, Identifying Figures	41 Descriptor - Identifying Plane Figures Role, Student

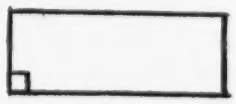
		6 1 3 3 0	

OBJECTIVE: Given a set of polygons, the student will select and write the rectangle.

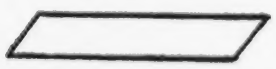
SAMPLE ITEM: Select the letter of the polygon that is a rectangle.

A.

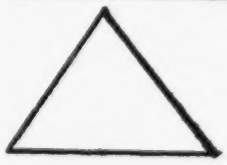
B.



C.



D.



Answer: B

Level 5 Classification - Geometry, Identifying Figures	41 Descriptor - Identifying Plane Figures Role, Student

		6 1 3 4 0		

OBJECTIVE: Given a set of polygons, the student will select and write the quadrilateral.

SAMPLE ITEM: Which of the following polygons is a quadrilateral?

A.

B.

C.

D.

Answer: C

Level 5 Classification - Geometry, Identifying Figures	41 Descriptor - Identifying Plane Figures Role, Student

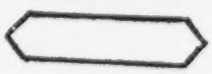
		6 1 3 4 5		

OBJECTIVE: Given a set of plane figures, the student will select and write the polygons or circles.

SAMPLE ITEM: Write the letter which labels a circle.

A.

B.

C. 

D.

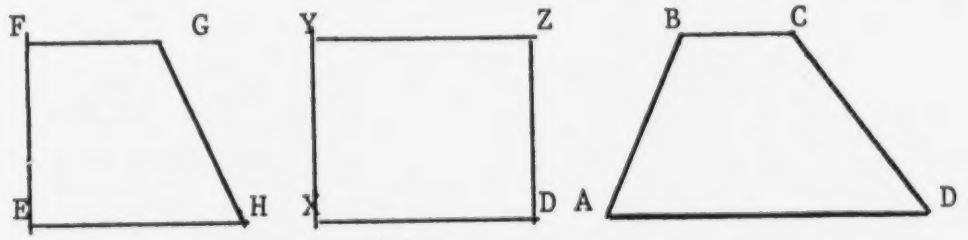
Answer: D

Level 5 Classification - Geometry, Identifying Figures	41 Descriptor - Identifying Plane Figures Role, Student

		6	1	3	5 0

OBJECTIVE: Given a set of figures containing parallel lines, the student will name which lines appear to be parallel.

SAMPLE ITEM: Name the parallel lines:



Answer: (a) $\overleftrightarrow{FG}$ and $\overleftrightarrow{EH}$
(b) $\overleftrightarrow{YZ}$ and $\overleftrightarrow{XD}$, $\overleftrightarrow{XY}$ and $\overleftrightarrow{DZ}$
(c) $\overleftrightarrow{AD}$ and $\overleftrightarrow{BC}$

Level 5 Classification - Geometry, Lines	41 Descriptor - Parallels and Perpendicular Lines Role, Student

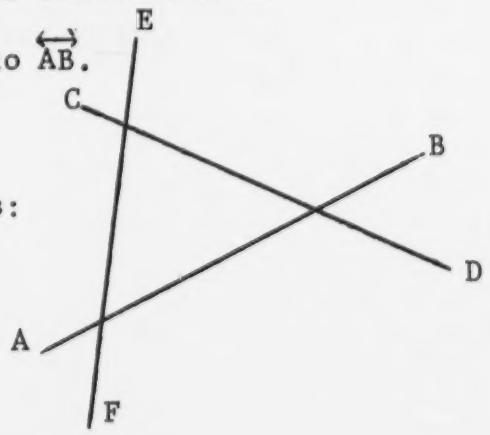
		6	1	3	5 5

OBJECTIVE: Given a set of line segments, the student will name or draw the perpendicular or intersection.

SAMPLE ITEM: (a) Draw a line perpendicular to $\overleftrightarrow{AB}$.

A _____ B

(b) Name the intersecting lines:



Answer: (a)

(b) $\overleftrightarrow{AB} \cap \overleftrightarrow{CD}$
$\overleftrightarrow{AB} \cap \overleftrightarrow{EF}$
$\overleftrightarrow{CD} \cap \overleftrightarrow{EF}$

Level 5 Classification - Geometry, Lines	41 Descriptor - Parallels and Perpendicular Lines Role, Student

		6 1 3 6 0	

OBJECTIVE: Students will be presented with a picture of a line, a line segment, or a ray. They will then select the notation which correctly describes the picture. The notations from which they may choose will be of the form:

$\overleftrightarrow{AB}$ $\overleftarrow{AB}$ $\overline{AB}$ $\overrightarrow{AB}$

SAMPLE ITEM: Which is the correct label for the figure?

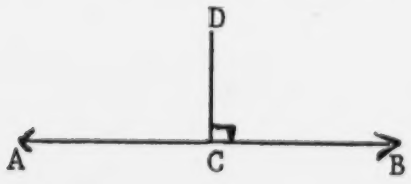
(A) $\overleftrightarrow{AB}$ (B) $\overleftarrow{AB}$ (C) $\overline{AB}$ (D) $\overrightarrow{AB}$

Level 5 Classification - Geometry, Lines	41 Descriptor - Lines, Line Segments, Rays Role, Student

		6 1 3 6 5		

OBJECTIVE: Students will be presented with a picture of perpendicular or parallel lines, line segments, or rays. They will then select a notation like $\overleftrightarrow{AB} \perp \overrightarrow{BC}$ which exactly describes the picture.

SAMPLE ITEM: Which label exactly describes the figure?



(A) $\overline{CD} \perp \overleftrightarrow{AB}$

(B) $\overleftrightarrow{CD} \parallel \overleftrightarrow{AB}$

(C) $\overline{CD} \parallel \overleftrightarrow{AB}$

(D) $\overleftrightarrow{CD} \parallel \overline{AB}$

Level 5 Classification - Geometry, Lines	41 Descriptor - Parallels and Perpendicular Lines Role, Student

		6 1 3 7 0		

OBJECTIVE: Given the definition or picture of a ray, the student will name it in writing as a ray.

SAMPLE ITEM: The following geometric figure is a ___?___.

Answer: Ray

Level 5 Classification - Geometry, Lines	41 Descriptor - Lines, Line Segments, Rays Role, Student

		6 1 3 7 5		

OBJECTIVE: Given the definition or picture of a line segment, the student will name it in writing as a line segment.

SAMPLE ITEM: The following is a picture of a ___?___.

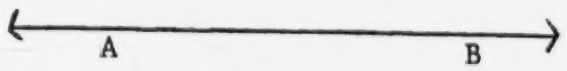
Answer: Line segment

Level 5 Classification - Geometry, Lines	41 Descriptor - Lines, Line Segments, Rays Role, Student

		6	1 3 8 0	

OBJECTIVE: Given a picture of a line, the student will name it in writing as a line.

SAMPLE ITEM: The following geometric figure represents a _____.



Answer: Line

Level 5 Classification - Geometry, Lines	41 Descriptor - Lines, Line Segments, Rays Role, Student

		6	1 3 8 5	

OBJECTIVE: The student will determine and write the number of dimensions for a line or a point.

SAMPLE ITEM: How many dimensions does a line have?

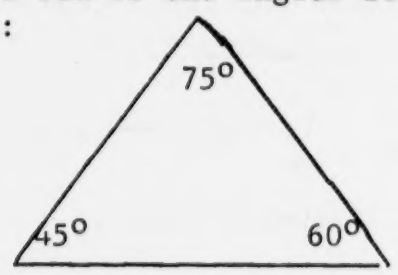
Answer: 1 or one

Level 5 Classification - Geometry, Lines	41 Descriptor - Lines, Line Segments, Rays Role, Student

		6 1 3 9 0	

OBJECTIVE: Given a polygon and the measure of its angles, the student will name the sum of the angles.

SAMPLE ITEM: Name the sum of the angles for the following polygon:



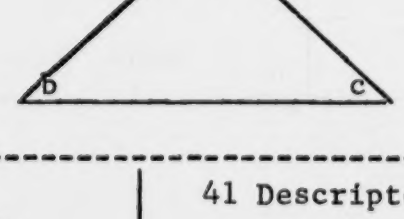
Answer: 180°

Level 5 Classification - Geometry, Angles	41 Descriptor - Sum of the Angles of a Polygon Role, Student

		6 1 3 9 5	

OBJECTIVE: Students will be presented with a picture of one or more angles which are uniquely labeled by letters. Students will then select the name which describes the pictured angle or angles. Students will select from right, vertex, interior, and exterior angles. Students may also be presented with a picture of an angle and a protractor. In this case they will select the number which corresponds to the number of degrees in the pictured angle.

SAMPLE ITEM: What kind of angle is b?



(A) right
(B) vertex
(C) interior
(D) exterior

Level 5 Classification - Geometry, Angles	41 Descriptor - Angles Classification Role, Student

		6 1 4 0 0	

OBJECTIVE: Given a definition, the student will name it in writing as an acute angle, right angle, obtuse angle, or straight angle.

SAMPLE ITEM: An angle of 90^{o} is called a ____?____ angle.

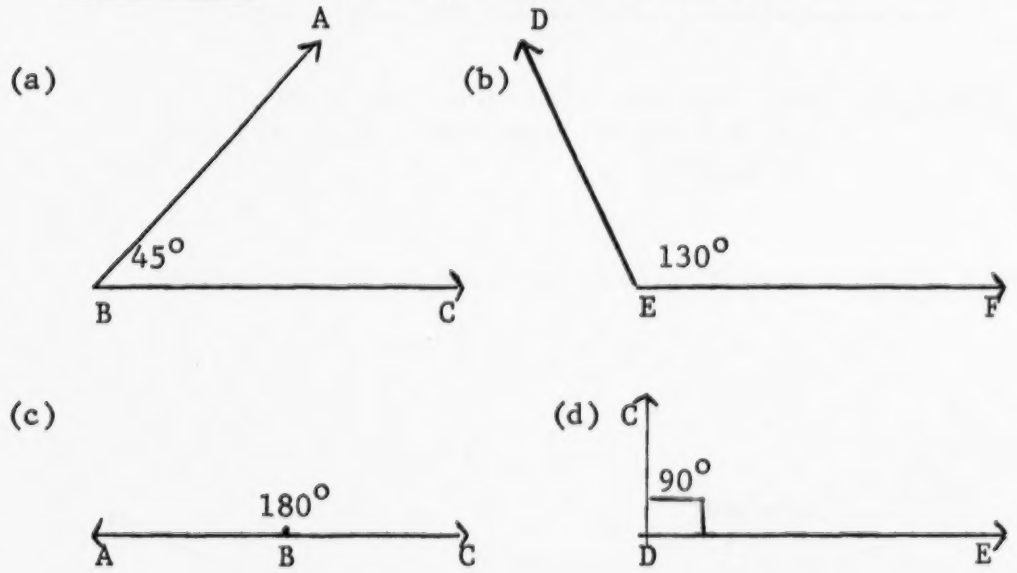
Answer: Right

Level 5 Classification - Geometry, Angles	41 Descriptor - Angles Classification Role, Student

		6 1 4 0 5	

OBJECTIVE: Given an angle, the student will identify it as an acute, obtuse, right, or straight angle.

SAMPLE ITEM: Name each angle represented:



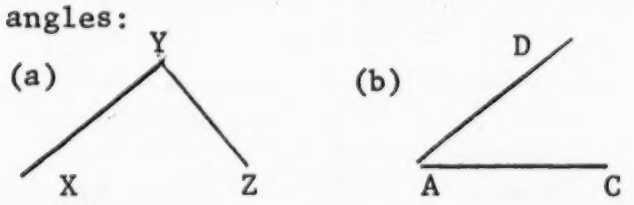
Answer: (a) ∠ABC = acute angle
(b) ∠DEF = obtuse angle
(c) ∠ABC = straight angle
(d) ∠CDE = right angle

Level 5 Classification - Geometry, Angles	41 Descriptor - Angles Classification Role, Student

		6 1 4 1 0		

OBJECTIVE: Given an angle and a protractor, the student will measure the angle within two degrees and name the angle using letters.

SAMPLE ITEM: Name the number of degrees in the following angles:



Answer: (a) $m\angle XYZ = 90^{o}$
(b) $m\angle DAC = 45^{o}$

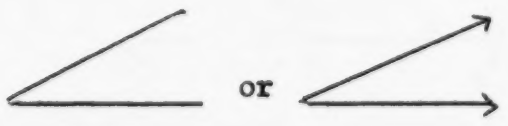
Level 5 Classification - Geometry, Angles	41 Descriptor - Measuring Angles Using Protractor Role, Student

		6 1 4 1 5		

OBJECTIVE: The student will draw the correct symbol for a line, ray, line segment, or angle.

SAMPLE ITEM: Draw the correct symbol for an angle.

Answer:

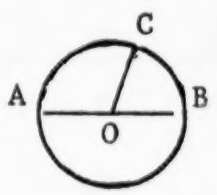


Level 5 Classification - Geometry, Angles	41 Descriptor - Identifying Plane Figures Role, Student

		6 1 4 2 0	

OBJECTIVE: Students will be presented with a picture of a labeled circle and will select the name of a particular labeled part. They will select the name from among arc, diameter, circumference, and radius. Students may also be presented with a protractor and a picture of an arc. In this case, they will select the number which corresponds to the number of degrees in the arc.

SAMPLE ITEM: What is $\overline{OC}$?



(A) diameter
(B) arc
(C) circumference
(D) radius

Level 5 Classification - Geometry, Circles	41 Descriptor - Identifying Parts of a Circle Role, Student

		6 1 4 2 5	

OBJECTIVE: Given a set of geometric figures, the student will select the letter of the correct drawing of a simple closed curve.

SAMPLE ITEM: From the following drawings, identify the simple closed curved:

(A) (B) (C) (D)

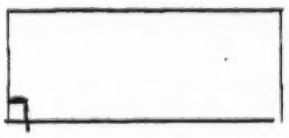
Answer: D

Level 5 Classification - Geometry, Curves (Open and Closed)	41 Descriptor - Closed Curves Role, Student

		6 1 4 3 0	

OBJECTIVE: Students will be presented with a picture of a simple closed curve. They will then select the name of the curve from among circle, polygon, quadrilateral, rectangle, square, and triangle.

SAMPLE ITEM: What is the name of the figure?



(A) circle
(B) triangle
(C) rectangle
(D) square

Level 5 Classification - Geometry, Curves (Open and Closed)	41 Descriptor - Identifying Plane Figures Role, Student

		6 1 4 3 5	

OBJECTIVE: Given the length of the sides of a rectangular polygon, the student will find its area.

SAMPLE ITEM: Find the area of the rectangle:

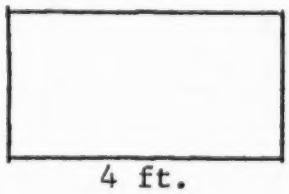
Answer: 42 sq. in.

Level 5 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Area of Polygon Role, Student

		6 1 4 4 0	0 0 0 0 5

OBJECTIVE: Students will be presented with a picture of a rectangular region with the length of each side labeled in inches, feet, or yards, but not in combinations of them. Students will select the number and accompanying unit which is equal to the area of the rectangular region.

SAMPLE ITEM: What is the area of the rectangle?



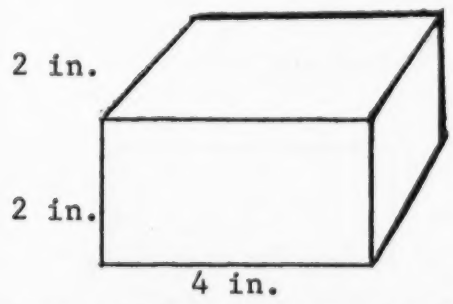
(A) 7 sq. ft.
(B) 12 sq. ft.
(C) 14 sq. ft.
(D) 10 sq. ft.

Level 5 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Area of a Rectangle Role, Student

		6 1 4 4 0	

OBJECTIVE: Students will be presented with a picture of a rectangular prism with the length of each edge labeled in inches, feet, or yards, but not in combinations of them. The students will then select the number and accompanying unit which is equal to the surface area of the prism.

SAMPLE ITEM: Find the surface area of the rectangular prism.



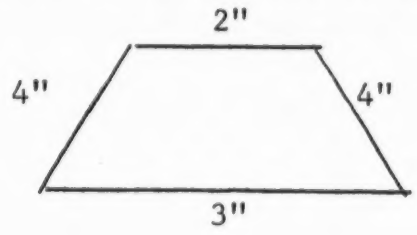
(A) 16 sq. in.
(B) 32 sq. in.
(C) 40 sq. in.
(D) 24 sq. in.

Level 5 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Surface Area Role, Student

		6 1 4 4 5	

OBJECTIVE: Given the length of its sides, the student will write the perimeter of a polygon.

SAMPLE ITEM: Determine the perimeter of this polygon:



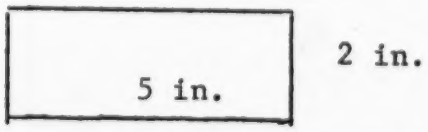
Answer: P = 13 in.

Level 5 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Perimeter Role, Student

		6 1 4 5 0	

OBJECTIVE: Students will be presented with a picture of a polygon of eight sides or less with the length of each side labeled on it. Students will then select the number and unit which is equal to the perimeter of the given polygon. All lengths will be natural numbers. The sides will be labeled in inches, feet, or yards, but not in combinations of them.

SAMPLE ITEM: What is the perimeter of this rectangle?



(A) 14 in. (B) 10 in. (C) 7 in. (D) 12 in.

Level 5 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Perimeter Role, Student

		6 1 4 5 5	

OBJECTIVE: Given the length of the 3 sides of a triangle, the student will compute and write the perimeter.

SAMPLE ITEM: The three sides of a triangle are 5 units, 10 units and 15 units. What is the perimeter?

Answer: 30 units

Level 5 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Perimeter Role, Student

		6 1 4 6 0	

OBJECTIVE: Given one side of a regular pentagon, the student will compute and write the perimeter.

SAMPLE ITEM: Compute and write the perimeter of a regular pentagon whose side measures 10 inches.

Answer: 50 inches or 4 feet 2 inches

Level 5 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Perimeter Role, Student

		61465	

OBJECTIVE: Given the length and width of a rectangle, the student will compute and write the perimeter.

SAMPLE ITEM: Compute the perimeter of a rectangle with a length of 10 inches and a width of 5 inches.

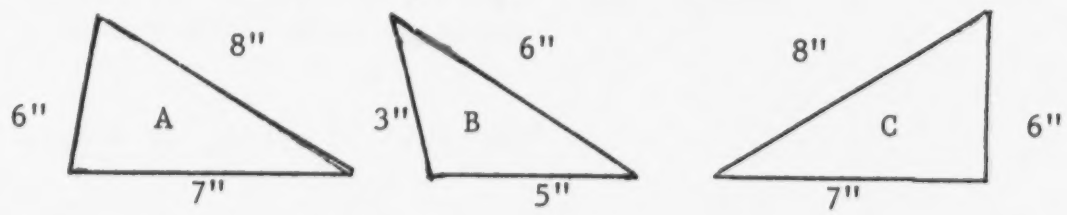
Answer: 30 inches or 2 feet 6 inches

Level 5 Classification - Geometry, Area/Perimeter/Volume	41 Descriptor - Perimeter Role, Student

		61470	

OBJECTIVE: Given a set of geometric figures, the student will name the congruent figures.

SAMPLE ITEM: Name the congruent figures:



Answer: $A \cong C$

Level 5 Classification - Geometry, Triangles/Congruence/ Similarity	41 Descriptor - Congruence Role, Student

Problem Solving/Word Problems

		6 1 4 7 5	

OBJECTIVE: Given a problem involving whole numbers, the student will name the necessary operations to solve the problem.

SAMPLE ITEM: Name the operation or operations necessary to solve the problem:

How far can a plane fly in 5 hours at 300 miles per hour?

Answer: multiplication

Level 5 Classification - Problem Solving/ Word Problems, Problem Solving, Basic Techniques	41 Descriptor - Indicating Operations/ Problem Solving Role, Student

		6 1 4 8 0	

OBJECTIVE: Given a verbal problem, the student will solve the problem and express the answer as an estimate to the nearest indicated digit.

SAMPLE ITEM: Bill worked four hours a day for 6 days at the rate of $1.99 per hour. Estimate his earnings, to the nearest dollar.

Answer: $48.00

Level 5 Classification - Problem Solving/ Word Problems, Problem Solving, Basic Techniques	41 Descriptor - Estimating/Problem Solving Role, Student

		6 1 4 8 5		

OBJECTIVE: Students will select the number which is the best estimate for an answer to a given word problem. The given word problem will be no longer than two sentences and will involve only one operation upon two numbers.

SAMPLE ITEM: John has $5 and Bill has $123. (Select the best choice.) Bill has more than_____ times as much money as John.

(A) 24 (B) 118 (C) 25 (D) 30

Level 5 Classification - Problem Solving/ Word Problems, Problem Solving, Basic Techniques	41 Descriptor - Estimating/Problem Solving Role, Student

		6 1 4 9 0		

OBJECTIVE: Students will select the number which is the answer to a given word problem. The given word problem will be no more than two sentences long, and it will involve only addition upon two natural or decimal numbers.

SAMPLE ITEM: Fred has 108 marbles and buys 24 more. How many marbles does Fred have altogether.

(A) 84 (B) 132 (C) 122 (D) 142

Level 5 Classification - Problem/Solving Word Problems, Problems involving Operations on Whole Numbers	41 Descriptor - Word Problems - Whole Numbers Role, Student

		6 1 4 9 5		

OBJECTIVE: Students will select the number which is the answer to a given word problem. The given word problem will be no more than two sentences long and will involve only subtraction upon two natural or decimal numbers.

SAMPLE ITEM: There are 545 seats in a movie theater. One night 72 seats were empty and the rest were full. How many people were at the movie?

(A) 473 (B) 533 (C) 573 (D) 673

Level 5
Classification - Problem Solving/
Word Problems,
Problems involving
Operations on Whole Numbers

41 Descriptor - Word Problems -
Whole Numbers

Role, Student

		6 1 5 0 0		

OBJECTIVE: Students will select the correct answer to a given word problem. The given word problem will be no more than two sentences long and will involve only multiplication upon two natural numbers.

SAMPLE ITEM: A truck driver travels 547 miles every day. How many miles does he travel altogether in 14 days?

(A) 7,558 (B) 7,538 (C) 7,438 (D) 7,658

Level 5
Classification - Problem Solving/
Word Problems,
Problems involving
Operations on Whole Numbers

41 Descriptor - Word Problems -
Whole Numbers

Role, Student

		6 1 5 0 5	

OBJECTIVE: Students will select the correct answer to a given word problem. The given word problem will be no longer than two sentences and will involve only division upon two natural numbers. The word problem may ask either for a quotient or a remainder as an answer:

SAMPLE ITEM: John has 112 apples to divide equally among 8 people. How many apples will each person have?

(A) 14 (B) 8 (C) 104 (D) 16

Level 5 Classification - Problem Solving/ Word Problems, Problems involving Operations on Whole Numbers	41 Descriptor - Word Problems - Whole Numbers Role, Student

		6 1 5 1 0	

OBJECTIVE: Given a problem involving whole numbers, the student will write the equation and solve the problem.

SAMPLE ITEM: Write an equation for the word problem and solve the problem: What is the cost of 6 train tickets at $4.54 each?

Answer: $4.54 X 6 = ☐

$4.54 X 6 = $27.24

Level 5 Classification - Problem Solving/ Word Problems, Problems involving Operations on Decimals	41 Descriptor - Writing Equations from Problems Role, Student

		6 1 5 1 5	

OBJECTIVE: Students will select the correct answer to a given word problem. The given word problem will be no longer than two sentences and will involve either addition or subtraction (but not both) upon a pair of proper fractions or mixed numbers. The denominators of any fraction will be less than or equal to 20.

SAMPLE ITEM: Bill ate $\frac{1}{3}$ of his mother's apple pie. How much of the pie was left in all?

(A) $\frac{1}{2}$ (B) $\frac{1}{3}$ (C) $\frac{2}{3}$ (D) $\frac{3}{4}$

Level 5 Classification - Problem Solving/ Word Problems, Problems involving Operations on Fractions	41 Descriptor - Word Problems - Fractions Role, Student

		6 1 5 2 0	

OBJECTIVE: Students will select the correct answer to a given word problem. The given word problem will be no more than four sentences long and will consist of a list of articles to be purchased, with no more than five articles in the list. The word problem will also state the amount of money handed to the store keeper and will ask for the amount of change the buyer would receive.

SAMPLE ITEM: Jane bought a shirt for $4.98, lipstick for $1.29, and a pair of shoes for $2.98. If she gave the clerk a $10 bill, how much change would she receive?

(A) $1.22 (B) $0.75 (C) $2.97 (D) $3.03

Level 5 Classification - Problem Solving/ Word Problems, Consumer Mathematics	41 Descriptor - Word Problems - Consumer Mathematics Role, Student

		6 1 5 2 5	

OBJECTIVE: Given a word problem involving 2 steps, the student will solve the problem and write the answer.

SAMPLE ITEM: Mr. Smith went to the store to purchase some tools. He bought a hammer for $2.25, a saw for $5.25, and a drill for $2.10. He paid for the items with a $10 bill. How much change did he receive?

Answer: .40

Level 5 Classification - Problem Solving/ Word Problems, Consumer Mathematics	41 Descriptor - Word Problems - Consumer Mathematics Role, Student

		6 1 5 3 0	

OBJECTIVE: Given a verbal problem, the student will find the solution.

SAMPLE ITEM: Find the solution:

What is the cost of 5 golf balls at $2.00 each?

Answer: $10.00

Level 5 Classification - Problem Solving/ Word Problems, Consumer Mathematics	41 Descriptor - Word Problems - Consumer Mathematics Role, Student

		6 1 5 3 5	

OBJECTIVE: Given a word problem involving rate, the student will solve the problem.

SAMPLE ITEM: If Jack's train travels at 90 miles per hour, how many hours will it take to cover 450 miles?

Answer: 5 hours

Level 5 Classification - Problem Solving/ Word Problems, Measurement	41 Descriptor - Word Problems Involving Measurement Role, Student

		6 1 5 4 0	

OBJECTIVE: Given a word problem involving measures, the student will find the solution.

SAMPLE ITEM: Solve the following problem:

Eva saved 535 pennies in her piggy bank, and Jimmy saved 125 pennies. If Eva gives Jimmy 2 dollars in pennies, how many pennies will he have? How many will Eva have left?

Answer: (a) 325
(b) 335

Level 5 Classification - Problem Solving/ Word Problems, Measurement	41 Descriptor - Word Problems Involving Measurement Role, Student

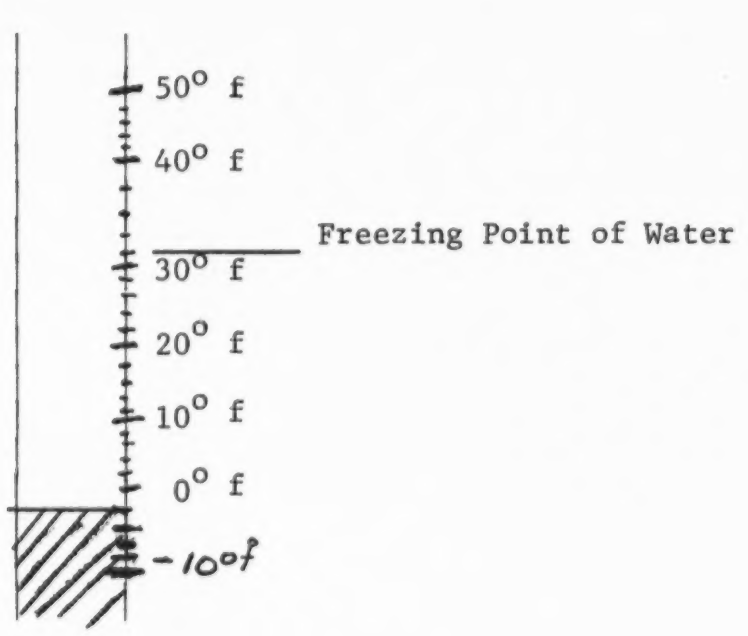
		6 1 5 4 5	

OBJECTIVE: Given a problem involving the use of a thermometer, the student will solve the problem.

SAMPLE ITEM: Use the picture of the thermometer to help you answer the following:

(a) If the temperature rises 23 degrees, what would the new temperature be?

(b) Does the thermometer show a temperature cooler or warmer than the freezing point of water? How much?



Answer: (a) 21°
(b) cooler; 34°

Level 5 Classification - Problem Solving/ Word Problems, Measurement	41 Descriptor - Word Problems - Involving Measurement Role, Student

Algebra

		6 1 5 5 0	

OBJECTIVE: Given a list of number sentences, the student will select the true number sentence.

SAMPLE ITEM: Choose and write the letter which shows a true number sentence.

A. $19 \div 4 = 6$
B. $13 \div 2 = 6$
C. $12 \div 3 = 4$
D. $17 \div 3 = 6$

Answer: C

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - True and False Number Sentences Role, Student

		6 1 5 5 5	

OBJECTIVE: Given a list of number sentences, the student will select the false number sentence.

SAMPLE ITEM: Write the letter of the false number sentence.

A. $6 \times 2 = 12$
B. $8 \times 3 = 24$
C. $7 \times 5 = 35$
D. $6 \times 7 = 44$

Answer: D

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - True and False Number Sentences Role, Student

		6 1 5 6 0		

OBJECTIVE: Given a verbal open sentence and a replacement set, the student will name the solution set.

SAMPLE ITEM: ____?____ was a president of the U.S.A. Name the solution set from the following:

{Abraham Lincoln, Maurice Morise, Joe Namath, John Kennedy} .

Answer: {Abraham Lincoln, John Kennedy}

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

		6 1 5 6 5		

OBJECTIVE: Given an open sentence and a replacement set, the student will write the solution set.

SAMPLE ITEM: Given: $3 \times \square + 2 = 8$, and the replacement set of integers, write the solution set.

Answer: {2}

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

		6 1 5 7 0	

OBJECTIVE: Given a one-step problem, involving one of the four basic operations, the student will write an open number sentence for its solution.

SAMPLE ITEM: Write an open number sentence to express the following problem.

Marty made 15 models of cars and Jerry made 26 models of cars. How many more cars than Marty did Jerry make?

Answer: 26 - 15 = ☐

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Writing Open Sentence from Verbal Descrip Role, Student

		6 1 5 7 5	

OBJECTIVE: Given a one-step problem, the student will write an open number sentence which represents the problem.

SAMPLE ITEM: Ken has 12 polo ponies and Brian has 5 polo ponies. Write an open number sentence we could use to find out how many polo ponies the men have all together.

Answer: 12 + 5 = ☐

5 + 12 = ☐

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Writing Open Sentence from Verbal Descrip Role, Student

		6 1 5 8 0		

OBJECTIVE: Given a sum which is five digits or less, and one addend, the student will find the missing addend.

SAMPLE ITEM: Solve the following number sentence by writing the missing addend in the blank space:

35,697 + ☐ = 99,786

Answer: 64,089

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

		6 1 5 8 5		

OBJECTIVE: Given an open number sentence, the student will find and write the solution set.

SAMPLE ITEM: Find and write the solution set for the following open number sentence:

75 - 36 =

Answer: {39}

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

		6 1 5 9 0	

OBJECTIVE: Given an open sentence, the student will write the missing addend that makes the sentence correct.

SAMPLE ITEM: Given 4 + ☐ = 7, write the missing addend.

Answer: 3

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

		6 1 5 9 5		

OBJECTIVE: Students will select the number which correctly completes a given number sentence illustrating the associative property of addition. All numbers used in the number sentence will be natural numbers.

SAMPLE ITEM: $4 + (7 + 3) = (4 + \square) + 3$

(A) 4
(B) 3
(C) 7
(D) 10

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

		6 1 6 0 0		

OBJECTIVE: Students will select the number which correctly completes a given number sentence illustrating the associative property of multiplication. All numbers used in the sentence will be natural numbers.

SAMPLE ITEM: $4 \times (3 \times 8) = (4 \times 3) \times \square$

(A) 8
(B) 4
(C) 3
(D) 12

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

		6 1 6 0 5		

OBJECTIVE: Students will select the number which correctly completes a given number sentence illustrating the commutative property of multiplication. All numbers used in the number sentence will be natural numbers.

SAMPLE ITEM: $7 \times 3 = 3 \times \square$

(A) 7
(B) 3
(C) 21
(D) 10

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

		6 1 6 1 0		

OBJECTIVE: Students will select the number which correctly completes a given number sentence illustrating the commutative property of addition. All numbers used in the number sentence will be natural numbers.

SAMPLE ITEM: $6 + 4 = 4 + \square$

(A) 4
(B) 10
(C) 2
(D) 6

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

		6 1 6 1 5	

OBJECTIVE: Students will select the number which correctly completes a given number sentence illustrating the distributive property of multiplication over addition. Either the right-or left-distributive property may be illustrated. All numbers used in the number sentence will be natural numbers.

SAMPLE ITEM: $3 \times (4 + 8) = (3 \times 4) + (3 \times \square)$

(A) 4 (C) 8
(B) 3 (D) 12

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

		6 1 6 2 0	

OBJECTIVE: Students will be presented with an incomplete number sentence for addition or subtraction consisting of two decimal numbers and a blank. The student will then select the decimal number which correctly completes the number sentence.

SAMPLE ITEM: $14.138 + \square = 33.345$

(A) 21.213 (C) 29.217
(B) 19.207 (D) 19.702

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

		6 1 6 2 5	

OBJECTIVE: Students will be presented with an incomplete number sentence for subtraction consisting of two proper fractions with like denominators and a blank. The students will then select an incomplete number sentence for addition consisting of two proper fractions with like denominators and a blank.

SAMPLE ITEM: Which number sentence has the same fraction missing?

$\frac{7}{8} - \square = \frac{3}{8}$

(A) $\frac{3}{8} + \square = \frac{7}{8}$ (B) $\frac{4}{8} + \square = \frac{7}{8}$

(C) $\frac{7}{8} + \frac{4}{8} = \square$ (D) $\frac{3}{8} + \frac{4}{8} = \square$

Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

		6 1 6 3 0	

OBJECTIVE: Students will select the number which correctly completes a given number sentence. The given number sentence will consist of two operations, plus parentheses where needed, from among the four basic operations of addition, subtraction, multiplication, and division. No more than four numbers will appear in the given number sentence and each number that does appear will be a natural number.

SAMPLE ITEM: $18 - \square = 4 + 2$ (A) 6 (C) 8 (B) 12 (D) 3

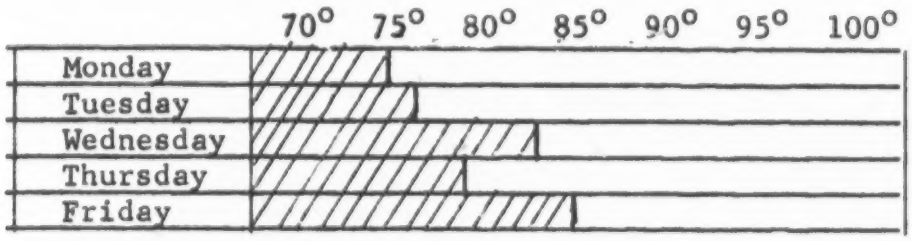
Level 5 Classification - Algebra, Number Sentences/ Open Sentences	41 Descriptor - Finding Solution Sets of Open Sentences Role, Student

Statistics and Probability

		6 1 6 4 0	

OBJECTIVE: Given a bar graph, the student will answer questions based on the graph.

SAMPLE ITEM:



(a) What is the difference between the highest and lowest temperatures?
(b) What were the two warmest days?

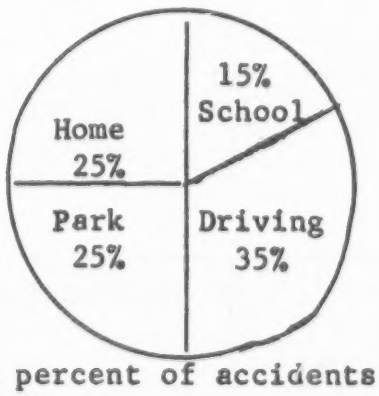
Answer: (a) 10^{o}
(b) Wednesday and Friday.

Level 5 Classification - Statistics and Probability, Graphs and Tables	41 Descriptor - Interpretation of Bar Graphs Role, Student

		6 1 6 4 5	

OBJECTIVE: Given a circle graph, the student will answer questions based on the graph.

Place Where Accidents Occur



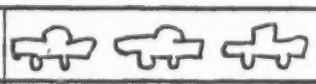
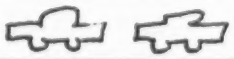
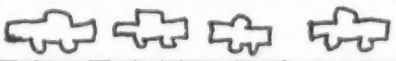
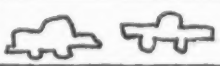
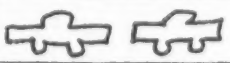
What percent of accidents occur in the home and school?

Answer: 40%

Level 5 Classification - Statistics and Probability, Graphs and Tables	41 Descriptor - Interpretation of Circle Graphs Role, Student

		6 1 6 5 0	

OBJECTIVE: Given a pictogram, the student will answer questions based on the pictogram.

1965	
1966	
1967	
1968	
1969	

= 1,000,000 cars

How many cars were produced in:

(a) 1965?
(b) 1966?
(c) 1968?

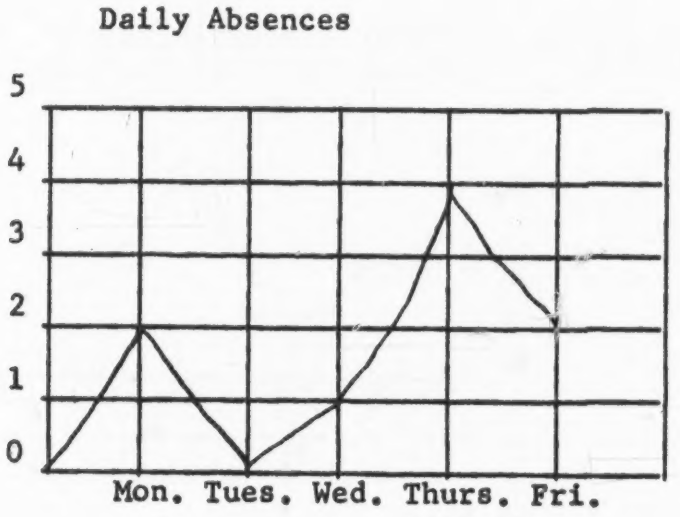
Answer: (a) 3 million
(b) $2\frac{1}{2}$ million
(c) 2 million

Level 5 Classification - Statistics and Probability, Graphs and Tables	41 Descriptor - Interpretation of Picto-Graphs Role, Student

		6 1 6 5 5	

OBJECTIVE: Given a broken line graph, the student will answer questions based on the graph.

SAMPLE ITEM:



How many pupils are absent each day?

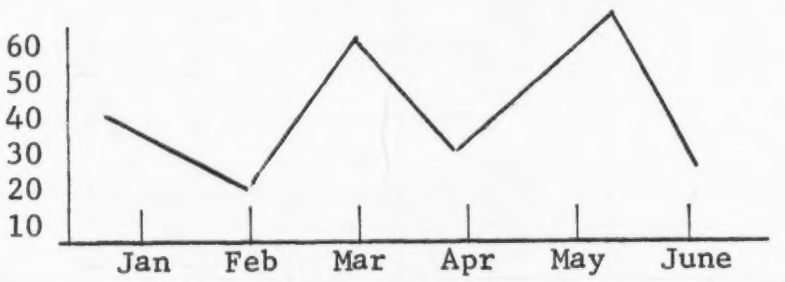
Answer: Monday: 2
Tuesday: 0
Wednesday: 1
Thursday: 4
Friday: 2

Level 5 Classification - Statistics and Probability, Graphs and Tables	41 Descriptor - Interpretation of Line Graphs Role, Student

		6 1 6 6 0	

OBJECTIVE: Students will select the correct answer to a given word problem. The given word problem will present a bar or line graph with numbers no larger than 100 and will consist of three or fewer sentences. Students may be asked to interpolate between two values on the given graph.

SAMPLE ITEM: Look at the graph and see in which month the most carswere sold at Joe's Used Car Lot.



(A) March
(B) January
(C) June
(D) May

Level 5 Classification - Statistics and Probability, Graphs and Tables	41 Descriptor - Bar or Line Graphs Role, Student

			6 1 6 6 5	

OBJECTIVE: Given a set of numbers, the student will compute their average.

SAMPLE ITEM: Name the average for the set of numbers:

9, 6, 5, 14, 36

Answer: 14

Level 5 Classification - Statistics and Probability, Mean	41 Descriptor - Finding the Mean Role, Student